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of the Lower Mekong Basin.
(Cambodia, Laos, Thailand and the Republic of Viet-Nam)

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PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

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COMMITTEE FOR COORDINATION OF INVESTIGATIONS OF THE LOWER MEKONG BASIN

PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

1. OBJECTIVES OF THE MEKONG DEVELOPMENT PROJECT

1.1 The Mekong Scheme seeks the development of the water resources of the Lower Mekong Basin, including mainstream and major tributaries, in respect of hydro-electric power development, irrigation, flood control, drainage, navigation improvement, watershed management, water supply and related developments.

2. MEKONG COMMITTEE

2.1 The Mekong Development Project is directed by the Committee for Coordination of Investigations of the Lower Mekong Basin, which was established jointly by the Governments of Cambodia, Laos, Thailand, and the Republic of Viêt-Nam in October 1957 in response to a recommendation adopted by ECAFE at its thirteenth session in March 1957. The terms of reference of the Committee are provided in a statute drafted by the Office of Legal Affairs at UN Headquarters, and formally adopted by the four riparian governments. The statute provides that the Committee shall consist of one member from each country "with plenipotentiary authority... to promote, coordinate, supervise and control the planning and investigation of water resources development projects in the Lower Mekong Basin". The statute empowers the Committee to "make requests on behalf of the participating governments for special financial and technical assistance and receive and administer separately such financial and technical assistance and take title to such property as may be offered by the technical or other assistance programmes of the United Nations, specialized agencies, friendly governments or other organizations." The Mekong Committee is thus the Board of Directors of an undertaking with many of the essential attributes of an operating public international corporation.

3. PRESENT PROJECT RESOURCES

3.1 In the spirit of international cooperation in the development of the Mekong, assistance has been made available to the Mekong Committee by 16 countries, 11 UN agencies, 3 Foundations, 2 private companies, and the four riparian

/governments.

work had been made towards the preparation of comprehensive project feasibility reports on these three projects. In the field of tributary projects, the Committee has had completed for it a detailed reconnaissance of all tributaries carried out as part of its basin data collection programme, and in addition has embarked upon the preparation of comprehensive feasibility reports on seven tributary projects; three of these comprehensive feasibility reports have been completed (the Nam Pong and Nam Pung in Thailand and the Nam Ngum in Laos.) In addition the self-contained hydro-electric portion of the feasibility report for the Prek Thnot project in Cambodia has been finished. The Nam Pong comprehensive feasibility report has been used as the basis of loan negotiations between one of the riparian partners, Thailand, and an assisting country, the Federal Republic of Germany, whereby $11 million have been advanced in a low-interest infrastructure loan which, along with $6 million appropriated by Thailand, have made possible the construction of this first component project within the Mekong Development Project network. In the field of navigation improvement, hydrographic survey offices have been established or strengthened in the four riparian countries; a hydrographic survey of navigable stretches of the river from Luang Prabang to the sea has been commenced and the initial survey for improvement on many of these stretches completed; and a substantial quantity of navigation aids have been obtained. Many ancillary projects have been launched and in some cases completed, including mineral surveys, establishment and operation of pilot agricultural farms, fisheries studies, preparation of a mathematical model of the delta, study of economic and social aspects of the overall project of Lower Mekong development, manpower analysis, seismic surveys, and public health studies of schistosomiasis and malaria in certain project areas.

5. PROPOSED WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

5.1. The Mekong Committee now feels that it will be useful to establish a forward programme of work and financial plan for the five years from 1 January to 1 January 1969. The Committee believes that this will be useful to the four governments which it represents, and also to the many governments, United Nations agencies, and other organizations co-operating in the project, or who may wish to embark upon, or increase, such co-operation.

/In briefest

In briefest summary, this Programme seeks within the coming five years to continue and extend the process of basic data collection; to prepare an amplified basin plan; to complete the comprehensive feasibility reports on the remaining of the seven tributary projects on which work has been taken up, and on five additional tributaries, for a total of 12 tributary project comprehensive feasiblity reports (Battambang, Prek Thnot, Stung Pursat and Stung Sen, in Cambodia; Nam Ngum and Se Done in Laos; Nam Pong, Nam Pung and Lam Plai Mat in Thailand; and Upper Se San and two of the Upper Sre Pok projects in Viêt-Nam); to complete, or virtually complete, comprehensive feasibility reports on three mainstream projects (Pa Mong, Sambor, and Tonle Sap); to progress in the long range programme of navigation improvement; and to move forward with a number of ancillary projects, completing a number of them.

5.2 This programme of work contemplates a five-year requirement in foreign currency of some $23.1 million equivalent, of which some $7.0 million equivalent has already been pledged or is in reasonable prospect, leaving a net requirement of some $16.1 million to be found for the continuation and expansion during the coming five years of the Committee work of data collection, planning, navigation improvement, and ancillary projects; together with central administration, coordination, fund raising, and promotion of capital investment. A tabular statement of the proposed work programme and financial plan for 1964/69 is given below as Annex III.

5.3 With the foregoing as the programmes of investigations, project planning, navigation improvement and ancillary projects constituting its direct work programme, the Committee hopes to generate international and domestic investment for the construction, or the finalization of financial negotiations for construction, of a minimum of eight tributary projects by the end of the 5-year period; and to bring the three high-priority mainstream projects to the point where they can provide the basis for similar financial negotiations in the following period.

/6. THREE PRINCIPLES

6. THREE PRINCIPLES

6.1 The Committee decided at its Nineteenth Session in Janaury 1963 that in establishing a five-year programme for 1964/69, it will be particularly important : 1/

(a) To extend, deepen, and speed implementation of the recommendations contained in the Report of the Wheeler Mission;

(b) To take into account the abilities of the four riparian partners to participate in the work; and

(c) To retain unchanged the present organization consisting essentially of the Mekong Committee as the Board of Directors of the Mekong Scheme with a small secretariat for coordination and administration, and with full scope for project contributions by friendly governments, United Nations agencies, and other organizations.

6.2 With reference to (a) above, the Committee notes that in the Work Programme which it is now establishing for 1964/69, all items listed below in Annex III are logical extensions or amplifications of all recommendations of the Wheeler Mission.

7. BASIC DATA COLLECTION

7.1 Mapping

7.11 Mapping of irrigable areas for the Pa Mong, Sambor, and Tonle Sap (Annex III below, Item 1.111)

7.111 One of the few Wheeler Mission recommendations on which very little work has been undertaken todate is supplementary spot levelling of irrigable areas. The irrigable areas to which the Committee now attaches highest priority insofar as mainstream projects are concerned are the irrigable areas of the Pa Mong, Sambor, and Tonle Sap projects. Mapping of these irrigable areas will consist of running spot levels on 1:20,000 rectified mosaics to produce 1 metre contours as required for irrigation planning. The cost of this mapping work was estimated in the Wheeler recommendations at $970,000. The present estimate places the figure at some $1,500,000.

/7.12

1/ Annual Report of the Committee for Coordination of Investigations of the Lower Mekong Basin to ECAFE (E/CN.11/607), para 44.01).

7.12 Mapping of nine additional promising tributaries (Annex III below, Item 1.112)

7.121. It will be recalled that the reconnaissance survey of tributaries undertaken by Japan[1/] shows 16 tributaries as promising for early development. Feasibility reports have been or are being prepared for seven of these 16 tributaries, with mapping provided under the Canadian programme or other sources. In order to provide basic data required for feasibility reports of the remaining nine tributaries within this group, and for the selection of the most promising of these, the Committee feels that it will be wise to prepare as soon as possible topographic maps at a scale of 1:20,000 with 2.5 to 5 metre contour intervals in the reservoir areas, and with one metre contour intervals in the irrigable areas. The total foreign currency cost of this task is estimated at $405,000. The Committee is discussing the possibility of assistance in this task with the United States.

7.13 Mapping of other possible mainstream reservoir areas and damsites (Annex III below, Item 1.113)

7.131 Under the Canadian Colombo Plan Mekong programme, mapping of the mainstream at a scale of 1:20,000 has been carried out to cover the entire Mekong river from the Laos/Burma border to Phnom-Penh. The width of the river valley included in the maps was decided by a consideration of the extent of the reservoir expected to be created by the mainstream project sites known to the Committee in 1959. In the case of the lower reach of the river, it was envisaged then to have a relatively low dam at Sambor, and possibly another lower dam at Stung Treng. The Khone project was to be developed essentially as a natural waterfall. In the final report submitted by the Japanese Team in September 1961, a relatively high dam was recommended at Stung Treng which would flood out the Khone Falls and part of the lower course of the Se Kong river. The proposed reservoir would extend over an area of about 6,100 square kilometres, mapping of most of which were not requested for inclusion within the Canadian programme. Detailed topographic maps of

/other

1/ Japanese Mekong Reconnaissance Team: "Report on the First Phase of Reconnaissance Survey on the Major Tributaries of the Mekong", Tokyo, May 1959; "Report on the Second Phase of Reconnaissance Survey on the Major Tributaries of the Mekong", Tokyo, September 1960; "Provisional Report on the Whole Reconnaissance Works of Major Tributaries of the Mekong", Tokyo, February 1961; "Comprehensive Reconnaissance Report on the Major Tributaries of the Lower Mekong Basin", Tokyo, September 1961.

other promising damsites are also required for basin planning. The foreign currency cost of mapping the Stung Treng reservoir area and 10 feasible damsites is estimated at $220,000.

7.2 Hydrology

7.21 Operation of existing basin network (Annex III below, Item 1.121)

7.211 The annual operation cost of the hydrologic network established under the US Programme of assistance[1/] to the Mekong Committee, with important supplements from France, India,[1/] New Zealand[1/] and the United Kingdom,[1/] is estimated at some $324,000 annually, which is being borne by the riparian countries. The cost in foreign currency in supplying necessary spare parts and replacements is estimated at $220,000 over a 5-year period. This requirement has been pledged by the United States commencing 1963, leaving the sum pledged within 1964/69 at some $220,000.

7.22 Establishment and operation of additional hydrologic stations on 9 tributaries (Annex III, Item 1.122)

7.221 Along with the mapping of 9 promising tributaries referred to in Para. 7.121 above, the U.S. Government has also undertaken[1/] to provide the Committee with the hydrologic equipment required for stations to be established on the same tributaries. The estimated foreign currency cost of this contribution has been set at $60,000; about half of this will have been spent during 1963, with the balance thus to fall within the first month of the 1964/69 period.

8. BASIN PLANNING

8.1 As stated in Para. 4.1 above, the Committee, for want of data, has not been able to revise and amplify the preliminary general plan prepared by ECAFE in 1957.[2/]

/The very

1/ Through the Colombo Plan.

2/ Flood Control Series No. 12 - 1957.

The very substantial progress which has been made in the intervening period in the field of hydrology and mapping however, means that an amplified basin plan can and should now be prepared, as recommend by the Wheeler Mission to be taken up about four years after commencement of work on the first of the Mission's recommendations. A decision requesting preparation of such an amplified basin plans was taken by the Committee at its Sixteenth Session[1/] in Phnom Penn in January 1962. The work of preparing the basin plan will broadly fall in two categories, as described in the immediately following paragraphs.

8.2 Field Investigations (Annex III below, Item 1.21)

8.21 The field investigations for preparation of the basin plan will include (in addition to the continued data collection programmes already described such as hydrology and mapping), detailed reconnaissance, geologic investigations, soil and land surveys, construction material surveys, and flowage damage surveys of some 12 project sites on the mainstream and 20 project sites on the major tributaries.

8.3 Preparation of plan (Annex III below, Item 1.22)

8.31 In the light of basic data, and of the results of field investigations of individual project sites, preliminary design and project lay-outs should be undertaken, including estimation of costs and benefits and alternative possibilities. A comprehensive analysis will be made of the interdependence of individual projects, both in the mainstream and major tributaries, in a system with respect to power production, flood control, irrigation, drainage, navigation, and domestic and industrial uses of water. This work should culminate in the preparation of a basin plan including alternatives.

/9. DEFINITION

1/ Annual Report for period ending 8 January 1962 (Document E/CN.11/WRD/MKG/L.45 Rev.1 Para 6.1).

9. DEFINITION OF A "COMPREHENSIVE FEASIBILITY REPORT"

9.1 At many points in the present document, and in particular in the two ensuing sections on Mainstream Project Planning and Tributaries Project Planning, the Committee makes frequent use of the term: "Comprehensive Feasibility Report". It may therefore be helpful to explain or to define this term. A comprehensive feasibility report is a detailed investigation of the technical possibility and economic desirability of a project layout and preliminary design, in order to determine with accuracy how much this would cost, what benefits might be reasonably expected, and the ratio between estimated costs and benefits and also financial returns. In the Committee's thinking, the fundamental conception of the term "Comprehensive Feasibility Report" is that such a report, when completed, becomes the basis for financial negotiations, both domestic and international, which hopefully may conclude with the decision to construct the project.

10. MAINSTREAM PROJECT PLANNING (Annex III below, Item 1.3)

10.1 As noted above, the Committee in 1957 assigned first priority to three mainstream projects (Pa Mong, Sambor and Tonle Sap) and hopes ultimately to develop these in a system of five or more mainstream projects. A brief description of each of the three first priority mainstream projects, of planning progress to-date, and of the foreign currency requirements over the coming 5-year period, 1964/69, is given in the following paragraphs.

10.11 Pa Mong (Annex III below, Items 1.31, 1.311, 1.312)

10.111 The Pa Mong mainstream project is conceived of as providing the principal reservoir within the Mekong system, and will make possible control of the river from above Vientiane down to the sea. On the basis of present data, it is believed that this project could irrigate something like one million hectares of land in the north-east of Thailand and in Laos, and could have, if desired, an installed capacity of something like 1,600,000 kW. Its reservoir would have a capacity some 2½ times that of the largest man-made reservoir so far constructed in North America (Lake Meade behind Boulder Dam).

/10.12

10.12 Damsite Geology. The task of carrying out the geologic investigation of the Pa Mong damsite has been pledged by Australia.[1/] In the autumn of 1962 the Australian Snowy Mountain Mekong Team composed of nine engineers, geologists and technicians arrived in the area to resume this work. The team installed itself in its camp on the Thai bank of the river and, with the assistance of 3 Thai and 2 Laos engineers and a labour force of some 20 persons, commenced drilling early in December. As envisaged in the Australian reconnaissance report of 1960, adopted by the Committee, the first work will be devoted to drilling at the two alternate damsites, with recommendations to be submitted as soon as possible. The second and final period of the Australian work will then be intensive drilling along the dam axis selected by the Committee in the Light of the first phase findings.

10.121 Other Pa Mong Investigations. Other work (in addition to the basic data collection described above) already completed in connection with the Pa Mong Project includes a partial soil survey of some irrigable areas carried out by France in 1960, a seismologic survey carried out by UNESCO in 1961, and a preliminary estimate of maximum flood prepared in 1961 by the Committee's WMO Hydrometeorologist.

10.122 Comprehensive Feasibility Report. The United States[1/] has agreed to prepare the comprehensive feasibility report of the Pa Mong project. The work commenced in 1961 with an initial visit by a U.S. Bureau of Reclamation team. This initial visit was followed by a two-month visit in 1961 by a USBR team of three specialists in respectively project planning, project design and agricultural economics. The U.S. team submitted a report which outlines a programme for conducting the Pa Mong investigations at a total cost of $5 million excluding local costs and recommends that first efforts be directed toward land classification surveys and related agricultural studies. A Plan of Operation, or Project Agreement, defining the scope of work in scheduled to be signed by members of the committee and the representative of U.S. government toward the end of March 1963.

10.2 Foreign Currency Requirement for 1964/69

10.21 It is estimated that the remaining main work of the Australian damsite geological team and the work to be undertaken by the U.S. will require funds as /estimated

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1/ Through Colombo Plan.

estimated in Annex III below, Items 1.311 and 1.312. The Committee hopes that all or virtually at any rate the bulk of the work of preparing the Pa Mong Comprehensive Feasibility Report will be completed by the end of the 5-year Programme herein contemplated.

10.3 Sambor (Annex III below, Items 1.32, 1.321)

10.31 The Sambor Project in Cambodia is conceived of as a "run-of-the-river" power plan project, involving a dam to utilize the natural flow of the Mekong river with little reservoir storage. Hydrologic data indicates that the Sambor, as such a run-of-the-river project, could have, if desired, an installed capacity of some 600,000 kW or more, from which at least 400,000 kW could be generated continuously. When augmented by the flow regulated by the Pa Mong, it can generate a million kW of continuous power. In addition, the project would have an irrigation potential by gravity flows for something like 100,000 hectares. The electric power could be used not only for industrial and domestic power and lighting purposes within Cambodia, and in other riparian countries as well, but also could be used for extensive pumping in connection with land reclamation in the delta, both in Cambodia and in the Republic of Viet-Nam.

10.311 Damsite Geology. The Australian[1/] Snowy Mountains Hydro-electric Authority Mekong team has already completed geological exploration at the damsite, including diamond drilling at the abutments and in the river bed; and have informed the Committee of their conclusions that the damsite is geologically satisfactory.

10.32 Comprehensive Feasibility Report. A Japanese preliminary survey team for the Sambor Project was organized in October 1961, and sent an operational staff team for field investigations in January 1962. These field investigations were completed early in the same year, with local facilities provided by the Government of Cambodia; and a report on this preliminary work was prepared and submitted to the Committee. Further work is being carried out by Japan under the "Japanese Overseas Technical Cooperation Agency" in 1963 towards preparation of the comprehensive feasibility report. The Committee greatly hopes that the Japanese Government will be able to continue its work through ultimate preparation of a comprehensive feasibility report, covering all technical and economic phases of the Project. The Committee understands that the approximate cost of completing the comprehensive feasibility report will be in the neighbourhood of $700,000.

1/ Through Colombo Plan.

/10.4

10.4 Tonle Sap Project (Annex III below, Items 1.33, 1.331, and 1.332)

10.41 The Mekong river during 5 or so months in each years, from about the beginning of the rainy seasion, reverses the flow of the Tonle Sap so that water from the Mekong flows into the Great Lake. In October the flow of the Tonle Sap again reverses with water for the subsequent approximate 7 months flowing out of the Great Lake, down the Tonle Sap, thence down the Mekong into the China sea. Several problems exist in this general area, each of which is steadily becoming more acute. One problem has to do with the apparent marked decline in the fish catch in the Great Lake, which historically has been a major source of protein for Cambodia, related to the problem of the fisheries, and constituting a problem in itself, is the apparent gradual silting up of the Great Lake. A third problem arises in that the law water discharge of the Mekong river from Phnom Penh to the China sea involves for a month or more in most years a lowering of the water level to such a point as to render navigation difficult for ocean-going vessels moving to and from Phnom Penh. A fourth problem concerns flooding in Phnom Penh and on down through the delta to the sea; this flooding appears to be becoming more of a problem with the passing of the years, not hydrologically, but because general economic development is gradually adding values to the area, with flood destruction thus acquiring a greater and greater importance economically. Finally there is the problem of unreclaimed land, of more than one million hectares, in the delta, largely in Viêt-Nam, at present rendered sterile by flooding and inadequate drainage or salt water intrusion. The conception of the Tonle Sap project centers upon the installation of a gated barrage across the Tonle Sap. By closing this barrage at the beginning of the rainy season except during the period of initial migration of the fish, the initial low floods would be diverted and not be allowed to enter the Great Lake; they would instead flow down the river into the sea without causing any damage. Fairly late in the flood season, the gates could be opened, allowing the high flood from the Mekong to flow through the Tonle Sap into the Great Lake, bringing it to approximately its present high water annual point, thereby reducing the magnitude of peak flood and flood damage in the delta, both in

/Cambodia and

Cambodia and in Viêt-Nam. It is then anticipated that the gates would be closed at the end of the rainy season, with water being retained in the Great Lake, at its present high water level, until the advent of the driest months of the year. By thus considerably increasing the depth of the lake for most of the year, and by even at its lowest period allowing the level to sink only to within about one meter above its present low water depth, it is believed that conditions for fish life would be greatly improved, thereby not only halting the present decline in fish catch, but permitting increased yields. By releasing water from the Great Lake in the driest months, the low-water of the Mekong and the Bassac would be increased, perhaps by as much as a half meter, thereby assisting navigation through increasing the navigable depth of the low water channel. The increased low water flow would similarly prevent or reduce the present degree of salt water intrusion from the sea, making possible, it is hoped, the progressive reclamation of considerable areas in the delta, especially if this could be undertaken in conjunction with pumping for drainage made possible by the Sambor project (See para. 10.31 above) Progress to-date, and anticipated forward requirements, on the various facets of the work which the Committee hopes will culminate in the construction and beneficial operation of the Tonle Sap barrage is given in the following paragraphs.

10.42 Barrage Design

10.421 A team provided by India[1/] from its Central Water and Power Commission has made good headway in collaboration with Cambodian authorities and others, in the preparation of the Tonle Sap barrage design; and anticipates completing this by the end of 1963, i.e. just prior to commencement of the 5-year work programme herein established.

10.43 Comprehensive Feasibility Report

10.431 The Tonle Sap Comprehensive Feasibility Report, like all reports of this character (see section 9 above) will require many collateral investigations and studies to produce the full technical and economic data on which the comprehensive feasibility report must be based This includes[2/]:

/mapping

1/ Through the Colombo Plan.

2/ Plan of Operation: Tonle Sap Comprehensive Project Report including barrage design and cost estimates (E/CN.11/WRD/MKG/R.45 Rev.3 of 5 June 1962, Appendix F).

mapping of the Great Lake to determine the capacities of the lake at various levels; gauging of discharge of important tributaries in various months; measurement of silt content carried by tributaries into the lake and in the Great Lake and Tonle Sap at various periods, and study of sedimentation; preparation of a plan of the Tonle Sap with levels of the river banks, dimension of openings in roads; measurement of discharge at proposed barrage site, and cross-sections during high flood level and flood slopes; and study of the discharges of the Mekong and Bassac along the river courses to the sea at salient points; cross-sections and topographic map showing planimetric data concerning the river and its outflowing branches, major canals, roads and boundaries of the flooded area, and elevations of river banks; crop and vegetation; the tidal range, and velocity distribution at selected points in the tidal reach during various seasons; rainfall observation for available years; detailed fish studies indicating fish habits and the optimum method of operation of the proposed barrage from the point of view of increasing fish production; miscellaneous studies on navigation channels, salinity, silting and shifting of channels; past data on storms and tidal waves, sedimentation data concerning both beds and bank material; a mathematical model of the delta; a land management investigation programme; soil conservation studies; hydrologic survey and navigation improvement particularly between Kampong Preas and Kampong Tkel; and, if possible, a hydraulic model of the delta.

10.432 A very substantial amount of the work involved in assembling the data referred to in the preceding paragraphs has been pledged and is under way, and certain blocks of it will be completed by the end of 1963. Work already under way with the close collaboration of Cambodian officials and other personnel, or pledged, includes an exhaustive fisheries study by France, sedimentation and related hydrologic study by France and the International Atomic Energy Agency, establishment of the hydrologic budget of the Lake by the Chief Hydrometeorologist supplied to the Committee by the Special Fund and the World Meteorological Organization, and the

/Preparation

preparation of a mathematical delta model under the UN Special Fund grant to the Mekong Committee with UNESCO as Executing Agency. A major agricultural pilot project being planned at My Phuoc in the delta in Viet-Nam as a French contribution to the Mekong Committee will also help in ascertaining land utilization potentialities. An approximate value of the work which has been pledged under the foregoing headings, along with the balance of the Indian pledge[1/] to prepare the comprehensive feasibility report (after assembling by other programmes of the component data), totals some $400,000 equivalent in foreign currency, as noted in Items 1.332 and 1.333 in Annex III.

10.433 The remaining requirement for related studies is estimated by the Committee at some $400,000 equivalent in foreign currencyas stated in Item 1.331 in Annex III , plus a considerable share in the mapping, estimated at $1,500,000 equivalent listed in Annex III at Item 1.111, along with a share in the mapping of mainstream reservoirs as listed in Annex III at Item 1.113; plus a share in the field investigations and preliminary lay-out of projects listed at some $1,840,000 equivalent under basin planning in Items 1.21 and 1.22 in Annex III.

11. TRIBUTARIES PROJECT PLANNING (Annex III below, Items 1.4through 1.48

11.1 The 1957 ECAFE Study, Development of Water Resources in the Lower Mekong Basin, while dealing principally with mainstream projects affecting more than one country, urged that planning should cover the "entire river basin, including the mainstream and its tributaries". The Mekong Committee, consistently with the Joint Declaration of Cambodia, Laos, Thailand and Viet-Nam broadly endorsing the 1957 ECAFE study, seeks to parallel Mekong Scheme work on mainstream projects with similar work for the development of major tributaries — partly because of the desirability of coordinating overall planning; partly because tributary projects will cost much less and require much less time to prepare and construct than mainstream projects; and partly because the Committee feels experience gained in developing

/tributaries

1/ Through its Colombo Plan.

tributaries will be invaluable in dealing with the larger mainstream undertakings. The Committee, however, has never expressed the view that it should exercise responsibility for all lower Mekong tributary developments, and indeed in three of the countries several welcome tributary projects are being developed outside the formal purview of the Committee. The Committee welcomed the 1958 offer of Japan to conduct reconnaissance of all the tributaries then not yet reconnoitered. (Para. 9.2 above). On the basis of the First Phase Japanese Report, submitted in May 1959, four tributaries --- one in each of the four riparian countries --- were selected by the Committee at its Fifth Session 16-19 June 1959, as the basis of an application to the UN Special Fund for financial assistance for the preparation of comprehensive project reports, to bring each of the four tributary projects to the point where finance for construction could be negotiated. In December 1959 the Special Fund acted affirmatively on the Committee's application. A Plan of Operation was worked out, pursuant to which engineering companies were employed for the planning work. Subsequently contributions from other countries (Israel and Japan) made possible the preparation of comprehensive feasibility reports on three additional tributaries, for a total of seven.

11.11 The seven tributries on which arrangements have been completed for the preparation of a comprehensive feasibility report are the Battambang and Prek Thnot in Cambodia, the Nam Ngum in Laos, the Nam Pong and Nam Pung in Thailand, and the Upper Se San and Upper Sré Pok in Viet-Nam. On two of these, the Nam Pong and the Nam Pung in Thailand, the comprehensive feasibility reports have been completed and financial negotiations have been finalized to enable construction to take place very soon. The comprehensive feasibility report on the Nam Ngum in Laos, and on the dam and hydroelectric portion of the Prek Thnot in Cambodia, have also been completed.

11.12 During 1964/69 the Committee greatly hopes to complete comprehensive project reports on seven additional tributary projects. Subject to data to be obtained from new hydrologic stations and mapping on nine promising tributaries (Items 1.112 and 1.122 in Annex III), the Committee anticipates

/that the

that the additional tributary projects will be on the Stung Pursat and Stung Sen in Cambodia, the Se Done and Nam Theun in Laos, the Nam Lam Plai Mat in Thailand, and two or more additional projects on the Upper Sré Pok in Viet-Nam. The Committee hopes to find some $2,300,000 equivalent in foreign currency for this work to be carried out in the coming five years (as listed in Items 1.4lto 1.48 in Annex III).

12. NAVIGATION IMPROVEMENT (Annex III below, Item 1.5)

12.1 At its 10th Session in May 1960, the Committee adopted a navigation improvement programme, which was based upon recommendations of the Wheeler Mission, and upon the principal conclusions of the report[1/] submitted to it in 1959 by the UN Technical Assistance Administration. The Committee agreed with the author of that report that it is "convinced that .. the development of inland navigation on the Mekong will, without doubt, bring about great improvements in the surface communications of these countries ...make possible the economic development of regions in the four countries concerned which are at present more or less inaccessible ... permit the development of mineral resources which would otherwise not be possible due to the high cost of rail or road transport over long distances...".

12.2 Subsequently the Committee was able to obtain from Great Britain a pledge in the amount of $266,000 equivalent for assistance in navigation improvement work; an allocation of $347,000 from the Special Fund for the commencement of the hydrographic survey; and a hydrographic survey of the delta from the United States.

12.3 In January 1963, as part of the 19th Session of the Committee, the Committee appointed an Ad Hoc Navigation Sub-committee to review progress to that point, and to consider a forward five-year programme. The

/sub-committee

1/ A.L. Van Riet, "Development of Inland Navigation in the Lower Mekong Basin", report prepared under the auspices of the United Nations Technical Assistance Programme for the Committee for Coordination of Investigations of the Lower Mekong Basin, 1959; pages 3 and 4.

sub-committee reiterated the basic policy and objectives that the Committee had adopted in May 1960, and recommended[1] for the five-year period 1964/69 the following: mapping of difficult rocky stretches on the basis of aerial photographs on a scale of 1/8,000, with contours at 50 cm intervals where necessary; sweeping of channels, snag clearing, removal of dangerous rocks, improvement of rocky stretches and further improvement of shallow sections of the river and river entrances with sandy shoals; further marking and improvement of channels; improvement in the design of existing craft; development of new craft designs, including a demonstration project; establishment of shipbuilding and ship repair facilities; port development and improvement of existing landings; a comprehensive transport study, with special reference to Mekong river navigation; study of alterations in the river regime and their repercussions on navigation; survey and study (economic and engineering) of ports and landing sites along the Mekong banks, with appropriate recommendations.

12.4 The Committee estimates that it will require some $2,500,000 equivalent in foreign currency, including related equipment and technical personnel (but not including the three posts included in Section 19 below, and at Item 2, in Annex III), to advance in 1964/69 in this work along the lines recommended by the Sub-committee as described in the preceding paragraph. (See also Annex III below, Item 1.5).

13. ANCILLARY PROJECTS (Annex III below, Item 1.6 to 1.66)

13.1 It may be recalled that many specific surveys are included in the Wheeler programme, such as flowage damage surveys, construction material surveys, soil surveys, geological investigations; and related and special studies in agriculture, minerals, transport, the power market, and general economic problems. The White Mission report[2] also recommended a series of studies in the economic and social fields. Very many of Wheeler and White Mission recommendation investigations are incorporated within other studies described in the previous portions of this report, especially under feasibility

/reports of

1/ Report of the ad hoc Sub-committee on Navigation Improvement (E/CN.11/WRP/MKG/L.75 (Rev.1) of 12 February 1963.).

2/ Gilbert White, Egbert de Vries, Harold Dunkerley, John V. Krutilla, Economic and Social Aspects of Lower Mekong Development.

report of individual projects. For example, geological investigations and boring of damsites are being carried out as part of the feasibility study of the three mainstream projects, and within the tributary feasibility reports. As another example, each comprehensive feasibility report, as defined in section 9 above, and with application to all mainstream and tributary feasibility reports, looks in very great detail at the economic as well as the technical feasibility of each of the projects. The Committee has, in addition, embarked upon, or contemplates embarking upon, a number of ancillary studies for the lower basin as a whole, and thus includes these within its 5-year Work Programme for 1964/1969. Brief descriptions of this work are given in the following paragraphs.

13.2 Mineral Surveys (Annex III, Item 1.61)

13.21 Aside from the survey of mineral resources in North-East Thailand and Laos financed by the Special Fund and the basin wide prospection of bauxite under French aid, most of the mineral surveys are currently carried out under bilateral programme with individual riparian countries. However, a certain amount of work to systematically record mineral resources in the basin as a whole and to fill the gaps in individual programme will be necessary. It is estimated that a sum of $500,000 in foreign currency will be required in 1964/69 for this work.

13.3 Power Market Surveys (Annex III below, Items 1.62, 1.621, 1.622, 1.623)

13.31 Among the three categories of power market survey, namely, domestic, regional and global, the Committee has already obtained assistance on two of them; domestic and global. It is hoped that assistance can be attended to the Committee in carrying out the regional market survey, the cost of which is estimated at $230,000 in foreign currency.

13.4 Flood Warning System (Annex III below, Item 1.63)

13.41 Following the study undertaken by the experts provided by France on flood forecasting and warning, it is felt that a flood warning system could advantageously be established in the lower basin. The cost for equipment and foreign experts in establishing and initially operating the system is estimated at $250,000 over 5 years.

/13.5

13.5 Irrigation Experimental and Demonstration Farms (Annex III below, Item 1.64)

13.51 The Committee has arranged for the planning of four irrigation experimental and demonstration farms, in connexion with the Battambang tributary project in Cambodia, the Nam Ngum tributary project in Laos, the Nam Pong tributary project in Thailand, the Upper Se San tributary project in Viet-Nam. Of the foregoing, the planning work has been made possible with UN Special Fund allocations. In addition, funds have been made available by the UN Special Fund for the construction and operation of one of these farms, that in the Vientiane Plain in Laos, as part of the Nam Ngum tributary Project. The Committee hopes to obtain funds, in an estimated amount of $1,500,000 equivalent in foreign currency, in order to make all these projects operational as demonstration and pilot projects during the coming 5-year period.

13.16 Economic and Social Studies (Annex III below, Item 1.66)

13.161 In addition to the very considerable economic analyses being carried out, and to be carried out, in connexion with other work described above, and in particular in connexion with the preparation of comprehensive feasibility reports for mainstream and tributary projects, the Committee would like to be able to carry out further work in the economic field. Experience indicates that it would be extremely useful if the Committees staff could assemble continuously up-to-date and reliable economic data, as one of the sources of information available to the teams preparing comprehensive feasibility reports. Increasingly the Committee will wish to examine such matters as the relation between water management and taxation, the incidence of local costs in construction projects, domestic and extra-regional investment potentials, and the prospective relationship between investment programmes and foreign trade and exchange earnings. The Committee would like to be able to embark upon original work in these fields, and also to assemble and analyze on a basin-wide basis the very considerable amount of material which already exists within the four riparian countries. It is estimated that an amount of $1 million in foreign currency will be required for such studies (Item 1.66 in Annex III).

/14.

14. TRAINING ACTIVITIES

14.1 The Mekong Committee attaches very great importance to training activities in all the areas of its work. This can be noted in Annex I, where a substantial proportion of all component projects are footnoted to indicate that they include fellowships. Training also takes place in the relationship between project managers provided under assisting programmes, and counterpart project managers provided by the Committee. In formulating its forward work programme for 1964/69, the Committee wishes to emphasize that it desires to continue and attend such training activities, possibly adding additional training work in the form of in-service training programmes, and occasional seminars.

14.2 An important objective of training is to work toward gradual take-over by riparian personnel of the functions of central administration, coordination, fund raising, and promotion of capital investment; the Committee notes that for several years one of the professional posts in the Office of its Executive Agent has been filled by a riparian; and that commencing in 1963, two of the 15 posts (one Associate Engineer and one Associate Hydrologist) are so filled.

15. FLEXIBILITY

15.1 The Committee, in establishing the present proposed Work Programme and Financial Plan for 1964/69, notes its intention to maintain reasonable flexibility within the Programme. The Committee wishes to establish targets and guidance for its staff, and for the countries, UN agencies and other organizations collaborating with it; but it does not intend that these shall become a straight-jacket. The Committee accordingly anticipates revising this 5-year programme from time to time, in the light of the information which will become available and the conclusions which will be reached as the work progresses.

16. NOTE ON NEED FOR CASH

16.1 The Committee draws attention to the fact that the great bulk of resources which have been available to it, or are likely to be made available to it in the coming five years, are tendered in services and in kind. The task of the

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Committee and its staff is to coordinate these various component projects so that they fit together in an effective and timely manner. It often happens, however, that gaps are found to exist as between component projects, or within component projects, which create difficulties and delays in the work related to these or other component projects. Similarly, it often is found, with respect to a completed study or analysis, that a slight amount of additional work would greatly enhance the value of the component project, perhaps in and of itself, perhaps in relation to other component projects. A vast hydrologic data collection programme costing several million dollars may be completed and the team may have departed; historical data in one particular case, which could not be located when the basic investigation was taking place, comes to light; a few hundred dollars are required to photograph and reproduce the new data. A $50,000 radio network is installed; its usefulness could be greatly increased if a few hundred dollars for new aerials could be obtained. A team preparing a comprehensive project report on a tributary under a contract of some $200,000 may discover, to everyone's gratification, that more water is available than had originally been thought, meaning that irrigation could be planned for several additional thousand hectares; but several thousand dollars will have to be found to make possible the additional basic mapping. It is not always possible to find a donor to provide exactly the equipment and services needed in cases like these, of which many continously occur; indeed, the difficulty of finding donors often appears to be in inverse proportion to the dimension of assistance required. "Shopping" for donors of such individual items is often a wasteful and time-consuming process. The Committee thus feel that the efficient operation of its work, and the effective and timely utilization of all resources available to it, require that some portion of its resources should be in cash, available for contingencies, and for unexpected new work requirements. Such cash resources might be in diverse currencies, and might be made available in some cases only to a particular component project or projects and in other cases to the Mekong Development Project as a whole. Such cash contingency resources might consist in part of funds held by contributing governments as part of their Mekong Development Project cooperative programmes

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as in already done in the case, for example, of the UK navigation improvement support programme. In some cases a principle of reciprocity might be established: the Committee could ask Contributing Country A to indent upon its Mekong contingency account to eke out certain items in the Mekong work of Contributing Country B; and then at another time, depending on needs and the status of accounts, similarly call upon Contributing Country B to help with the Mekong Programme of Contributing Country A. In other cases, such resources might be held in a central account at the Committee Headquarters in Bangkok; to the extent, as in the latter case, that funds were held (whether in diverse currencies or otherwise) in a central Committee account, the Committee would wish its Executive Agent in utilizing such funds, to adhere to appropriate budget, procurement, accounting and auditing procedures.

17. LOCAL COSTS AND COUNTERPART CONTRIBUTIONS

17.1 The Mekong Committee takes considerable pride in the extent to which the four riparian governments have themselves advanced local costs and counterpart contributions. It will be noted in the present list of resources given below in Annex III, which total some $36.9 million equivalent, that some $12 million, or nearly one third, have been advanced or pledged by the four riparian governments. If funds made available for construction are excluded, i.e. some $20 million equivalent, then of the remaining $16.9 million equivalent devoted to data collection, planning, and ancillary projects, some $2.9 million equivalent, or a bit more than one-sixth, has been advanced or pledged by the four riparian governments, in cash and in kind. The Mekong Committee fully intends to continue to do its utmost to find ways and means of maximum local participation in the Mekong Development Project. At the same time the Committee feels obliged to reiterate the statement made by its then-Chairman to ECAFE at Sixteenth Session of ECAFE in Bangkok in 1960. It will be recalled that at that time the Thai member in the Committee, speaking as Chairman, on behalf of the Mekong Committee, said[1/] that the Committee's single most difficult problem "arises in connexion with what are called local costs, that is the expenditures in cash, and in services and goods, which our four Governments are investing in this project. Everyone concerned, certainly including our four Governments, likes the principle of local contributions being added to international

/contributions;

1/ E/CN.11/WRD/MKG/R27 Corr.1, Annex 3.

contributions; and I have very great pride in reminding you that our four Governments have already pledged local support to the extent of approximately $1,000,000 for this work already under way. But we all feel that the attractiveness of this principle, as a principle, must not blind any of us --- either within the four riparian countries or among the donor countries or within the United Nations family --- to the fact that our means, fiscal and physical, are exceedingly slender. We thus must urge that, as a matter of policy, conviction, and practical possibilities, the assistance being extended to this project carry with it minimum requirements for counterpart contributions."

17.2 The Committee continues to urge that assistance extended to the Mekong Development carry with it minimum requirements for counterpart contributions.

18. ADVISORY BOARD (Annex III below, Item 2.0

18.1 One of the key recommendations of the Wheeler Mission UN/TAA Report of 1958 (See Annex II below) urged the appointment of a panel or board of persons of great experience in water resources development who could keep in touch with the broad progress and the more difficult problems of Mekong Development Project work, and advise the Mekong Committee on specific questions presented to it. The Board at present consists of:

Mr. Paul Bourrières (France; services made available through UN BTAO);

Sir Robert G.A. Jackson (United Kingdom; services made available through UN BTAO);

Mr. Filemon Rodriguez (Philippines; services made available through UN BTAO);

Lt. Gen. R.A. Wheeler (Ret.) (United States; services made available by International Bank).

Mr. Kanwar Sain - Secretary Member (India; services made available through the UN Special Fund, with Mr. Kanwar Sain also filling the full-time post of Chief Engineering Consultant of the Committee).

18.11 The Committee desires to add an investment economist to the above group of its advisers for a total of six.

/19.

19. ADMINISTRATION COORDINATION, FUND RAISING AND PROMOTION OF CAPITAL INVESTMENT (Annex III below, Item 2.0

19.1 The Committee at its session of 15-18 December 1958 recorded its view[1] that "it would be desirable to have an Executive Agent of the Committee, with necessary ancillary staff, stationed in Bangkok, who would have authority to take decisions on a day-to-day basis" on its behalf. At its Fourth Session 27 February - 4 March 1959 the Committee adopted detailed terms of reference for the post of Executive Agent, including the following:[1] "The Executive Agent will advise the Committee... and through the Committee as may be appropriate, the Governments of Cambodia, Laos, Thailand, and Viet-Nam, on the administrative and technical coordination of plans for the overall development of the basin. He will assist the Committee in carrying out the day-to-day coordination of the engineering, economic, agricultural and other studies undertaken at the request of the Committee by the United Nations and specialized agencies and also under bilateral programmes and will report to the Committee... on the progress of the work." Specific duties laid down by the Committee include preparation of requests for financial and technical assistance; follow-up on such requests; supervision of experts services and field projects undertaken by the United Nations and the specialized agencies and under bilateral programmes of individual countries; preparation of programmes of work for the effective utilization of these experts and services; and delineation of questions on which to ask advice of the Advisory Board. The Executive Agent is thus the General Manager of the Mekong Development Project, in charge of administration and coordination of the entire undertaking under the Mekong Committee as the Board of Directors. The Executive Agent is an officer of the United Nations, and expected to act as such,

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1/ See Proceedings of the Special Session of the Committee, 15-18 December 1958 (E/CN.11/WRD/MKG/R.1 Para 84).

including observance of the obligations specified in Article 100 of the Charter; and the Committee provided in the Executive Agent's terms of reference that he shall receive policy guidance from the Executive Secretary of ECAFE.

19.2 As of 1963, 15 professional posts were available for the task of central administration, coordination, fund raising and promotion of capital investment. these 15 posts were those of Executive Agent, Senior Engineering Consultant, two Associate Engineers, Chief Economist, Chief of Navigation Improvement, Chief Hydrometeorologist, Interpreter/Editor/Translator, and an Administrative and Procurement Officer; and (in the field, two Associate Hydrologists, two Navigation Improvement Officers, and two Hydrographers). Sixteen professional posts have been requested for 1964 consisting of : Executive Agent, Senior Engineering Consultant, two Associate Engineers, Chief Economist, Chief of Navigation Improvement, Chief of Power Market and Industries Development and Assistant, Chief Mineral Geologist, Chief Hydrometeorologist, Language Officer, and Administrative and Procurement Officer; and field staff of one Navigation Improvement Engineer, one Hydrographer and two Hydrologists).

19.3 The Committee's staff and Advisory Board have todate been made available from within the UN family - UN/ECAFE, the Special Fund, the Bureau of Technical Assistance Operations, and the International Bank. This includes the two riparian personnel now on the Committee's staff, which two posts are carried in respectively the UN/ECAFE budget and the regional BTAO programme. The Committee feels that its requirement for complete economic objectivity and strict political impartiality in the staff which assists it in administration, coordination, fund raising and the promotion of capital investment can best be met by maintaining this central relation with the United Nations.

20. NOTE ON INVESTMENT AND CONSTRUCTION

20.1 As noted, the Mekong Committee has been established by the four riparian governments "to promote, coordinate, supervise and control the planning and investigation of water resources development projects in the Lower Mekong Basin". The Programme of Work and Financial Plan herein established by the Committee for 1 January 1964/1 January 1969 accordingly is devoted to data collection, planning and the promotion of investment for construction; and not (apart from certain navigation improvement aids) to construction itself. However, the Committee,

/the four

the four governments which it represents, and the Committee's staff, regard the entire effort as meaningful only to the extent that the planning leads to investment and physical construction. The Committee thus wishes to record its hope that during 1964/69, financing will be arranged for and construction undertaken and in most cases completed on at least eight tributary projects, plus the major land reclamation project at My Phuoc in Viet-Nam. In the light of present planning information (in some cases well advanced, and in some cases only beginning), the Committee believes that the eight tributaries on which projects by 1 January 1969 will be under construction, or on which construction will have been completed, will include the Stung Battambang and Prek Thnot in Cambodia, the Nam Ngum and Se Done in Laos, the Nam Pong and Nam Pung in Thailand, and the Upper Se San and Upper Sre Pok in Viet-Nam; plus the My Phuoc project in Viet-Nam. The Committee's estimates, based on feasibility or preliminary reports, indicate that the foreign currency requirements for the foregoing would be some $144 million. Of this some $14 million equivalent is already in hand, leaving a target balance of some $133 million equivalent to be raised, plus the related local costs. The Committee attaches equal importance to its intention to advance during the 5 years 1964/69 in respect to mainstream projects, so that the basis will be laid for seeking finance for the actual construction of these three projects; cost estimates on mainstream projects, as their feasibility reports are not ready, are necessarily very rough; but in the light of the present planning estimates, the foreign currency cost of these three projects would appear to be in the neighbourhood of $772 million, again plus local costs. The Committee considers important the relationship between (a) the estimated cost of the 5-year Work Programme and Financial Plan herein proposed; and (b) the net target foreign investment figure sought for these five years, plus the foreign investment target figure for the 3 mainstream projects, preparation for which the Committee hopes to complete, or nearly complete, within the same 5-year period, namely a target foreign investment net figure of something in the neighbourhood of $905 million. It will be noted that (a) is some 2.5% of (b) --- a ratio which the Committee considers eminently reasonable in terms of applicable river basin development experience throughout the world.

/21. ADOPTION

21. ADOPTION OF PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN

At its Twentieth Session (Philippines 6-20 March 1963), the Committee provisionally adopted this programme as a working document, but undertook to review it in more detail at its Twenty-first Session, and at least once annually during the coming five years, inter alia with reference to priority.

/ANNEX I

WRD/MKG/INF/R.59 Rev.4
27 March 1963
ORIGINAL : ENGLISH

ANNEX I

UNITED NATIONS

ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST
CAMBODIA, LAOS, THAILAND AND VIET-NAM
Committee for Coordination of Investigations of the
Lower Mekong Basin

RESOURCES

The total resources contributed or pledged to the Mekong Scheme in approximate U.S. Dollar equivalent as of 20 March 1963 were:

GRANTS

Australia a/ b/ (Pa Mong and Sambor damsite geology)		409,500
Canada a/ b/ (aerial mapping)		1,365,000
China b/ (cement; experimental highlands rice seed; study tour)		105,500
France b/ (hydrology; fisheries, sedimentation, soil surveys; flood prediction; delta reclamation planning; bauxite and other minerals prospection, geological mapping & domestic power market surveys)		1,056,801
India a/ b/ (Tonle Sap project plan; rain gauges)		282,000
Iran (petroleum products)		77,000
Italy (expert services)		
Israel b/ (Prek Thnot project plan; irrigation; cement; programme-wide contingencies)		201,240
Japan a/ b/ (tributaries reconnaissance; Sambor preliminary project plan; Nam Pung project plan; Prek Thnot project plan:dams and hydroelectric power; Upper Sre Pok project plan; hydrology)		832,000
Netherlands (equipment)		138,000
New Zealand a/ (jet and survey boats; Tonle Sap project plan: equipment; programme-wide, contingencies)		197,000
Pakistan a/ (Nam Pong project: irrigation construction plans and specifications)		100,000
Philippines (topographic mapping)		235,294
United Kingdom a/ (hydrology; meteorology; hydrography; navigation improvement)		364,000
United States a/ (hydrology, hydrography, levelling and ground control surveys, $2,420,000; Pa Mong project plan, estimated cost $2,500,000)		4,920,000
UN/ECAFE (expert services and administrative support for Committee and Executive Agent; figure given is budget figure for 1961, 1962) c/		148,161
UN/TAB b/ (coordinates Expanded Technical Assistance Programme through which most of the BTAO and specialized agencies participation listed below is channelled)		
UN/BTAO (Wheeler Mission; experts; Advisory Board; serves jointly with ECAFE as executing agency for Special Fund tributaries, hydrography and minerals projects listed below; support to Office of Executive Agent)		362,799
ILO (manpower analysis)		12,104
FAO (agriculture and forestry studies; subcontractor for agricultural stations in Special Fund tributaries project listed below)		125,930
UNESCO b/ (executing agency for UN Special Fund mathematical delta model listed below; seismic survey)		16,800
WHO (schistosomiasis and malaria studies)		5,077
WMO (hydrometeorology)		45,300
IAEA (isotope studies of hydrology and sedimentation)		55,650
International Bank (provides member in Advisory Board)		
UN Special Fund:		
- Trib. Survey incl. agriculture stations b/	1,548,050	
- Hydrographic Survey b/	328,100	
- Minerals Surveys b/	422,300	
- Mathematical Delta Model Survey b/	605,300	2,903,750
	c/f	13,958,986

		b/f 13,958,906
Asia Foundation (travel grants)		
Ford Foundation (Economic and social study)		
Resources for the Future, Inc. (Power market analysis)		
Price Waterhouse Co. (Auditing of expenditure under New Zealand contribution)		
Shell Co. (documentary motion picture of Mekong)		
Local costs and contributions paid or pledged by the riparian countries:		
- under Canadian mapping programme	105,000	
- under Indian Tonle Sap project	50,000	
- under US hydrology programme	400,000	
- under post-US hydrology programme (first 16/19 months, approximate)	489,000	
- under Special Fund Tributaries Project	471,792	
- under Special Fund hydrographic survey for navigation improvement	346,600	
- under Special Fund Minerals survey	233,640	
- under Special Fund UNESCO mathematical delta model project	127,143	
- under Israel/Japanese Prek Thnot project (Cambodia)	72,000	
- for Nam Pong Tributary project construction (Thailand)	6,000,000	
- under Japanese Sambor preliminary project	8,600	
- under Japanese Nam Pung project (Thailand)	3,018,400	
- under Japanese Upper Sre Pok Project (Viet-Nam)	14,285	
- under Pakistan Nam Pong Irrigation Planning	25,000	
- for experimental and demonstration farm at Battambang (Cambodia)	300,000	
- for experimental and demonstration farm at Kalasin (Thailand)	311,000	11,966,460
	SUB-TOTAL: GRANTS	25,925,366
LOANS		
Federal Republic of Germany (Infrastructure loan to Thailand, 20 years, 3 percent, for construction of Nam Pong project; Thailand also appropriating $6,000,000 equivalent - see "Local costs" above)		11,000,000
	SUB-TOTAL: LOANS	11,000,000
	TOTAL: GRANTS AND LOANS	36,925,366

In addition to the two firms listed in the above table, engineering firms engaged in the various programmes include Associated Consluting Engineers of Karachi, Certeza Surveying Co., Japan Overseas Electric Power Development Co., Harza Co. International, Hunting Survey Corp. Ltd., Italconsult, Nippon Kosei K.K. Roger International Corp., Société grenobloise d'études et d'applications hydrauliques (SOGREAH). and Société française d'études et de réalisations d'équipements électriques (SOFRELEC), and Salzgitter Industriebau Gesellschaft MBH.

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a/ Through the Colombo Plan; total participation to date of nine countries in Colombo Plan equals approximately $8,245,794.

b/ Includes fellowships the cost of which in most cases are not included in the cost figures given above.

c/ ECAFE also performs many of the functions of the United Nations as executing agency for United Nations Special Fund tributary, hydrography and mineral surveys listed above.

ANNEX II

WHEELER MISSION RECOMMENDATIONS [1]

(Figures show expenditure in thousand US dollars)

1st priority _ _ _ _ _ 2nd priority group

	1st	2nd	3rd	4th	5th Years
Reconnaissance of major tributaries	120	120			
Hydrologic observation & (precipitation)	1,140	240	240	2/	2/
Survey and mapping					
(a) Levelling	370		170		
(b) Aerial mapping	340	330	540	530	
(c) Supplementary spot levelling	310	300	180	180	
(d) Detailed topographic and hydrographic survey		150		120	
(e) Flowage damage survey		50		50	
(f) Construction material survey		50		90	
(g) Geological Investigation and borings		240		470	
(h) Soil Survey		60		130	
(i) Hydrographic Survey	30	30			
Related and special studies (fisheries agriculture, irrigation, Flood control and drainage), forestry, mineral resources, transportation (waterways, highways, railways and airways), power market, and general economic studies)	200	200	100		
Preliminary planning					
(1) Promising reaches of the main river			900		
(2) Other reaches of the main river and major tributaries and skeleton basin plan					900
Advisory service to Coordination Committee	50	50	50	50	50
Annual expenditure	2,560	1,820	2,180	1,690	950
Accumulated expenditure	2,560	4,380	6,560	8,250	9,200

1/ United Nations Bureau of Technical Assistance Administration (BTAO), formerly United Nations Technical Assistance Administration (TAA), Mission headed by Lt. Gen. R.A. Wheeler, "Programme of Studies and Investigations for Comprehensive Development - Lower Mekong Basin", TAA/AFE/10, January 1958.

2/ Operation and maintenance by countries concerned.

Annex III

UNITED NATIONS
ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST
Committee for Coordination of Investigations of the Lower Mekong Basin
(Cambodia, Laos, Thailand and the Republic of Viet-Nam)

MEKONG DEVELOPMENT PROJECT
Proposed Work Programme and Financial Plan for 1964/69
(Estimated foreign currency requirements in $1,000's)

1 March 1963

(1)	1964/69 (2)	5 year requirement (3)	Pledged or in reasonable prospect (4)	Net requirement (3)-(4) (5)
1.0	Data collection, planning, navigation improvement, and ancillary projects	19,349	6,785	12,564
2.0	Administration, Coordination, Fund Raising, and Promotion of Capital Investment	3,750	205 1/	3,545
	TOTAL	23,099	6,990	16,109
1.0	DATA COLLECTION, PLANNING, NAVIGATION IMPROVEMENT, AND ANCILLARY PROJECTS			
1.1	Basin wide data collection	2,409	665	1,744
1.11	Mapping			
1.111	Mapping of irrigable areas for Pa Mong, Sambor and Tonle Sap Projects	1,500	-	1,500
1.112	Mapping of 9 promising tributaries (Nam Lik, Nam Theun, Se Bang Fai, Se Bang Hieng, Se Done, Lam Plai Mat, Sre Pok, Stung Pursat, Stung Sen)	405	405	-
1.113	Mapping of mainstem reservoir areas not covered by Canada (essentially Stung Treng-Khone reservoir) and mapping of dam sites (at Pak Peng, Luang Prabang, Pak Lay, Bung Kan, Thakhek, Khemarat, Pakse, Chau-Doc and Tan-Chau required for basin planning)	220	-	220
1.12	Hydrology			
1.121	Operation of existing basin network	200	200	-
1.122	Establishment and operation of additional stations at 9 tributary project sites	84	60	24
1.2	Basin Plan	1,840	-	1,840
1.21	Field investigations (detailed reconnaissance, geological investigations, soil and land survey, construction material survey, flowage damage survey) of about 12 project sites in the mainstream and 20 project sites in the major tributaries	1,240	-	1,240
1.22	Preliminary layout of projects including alternatives, estimation of costs and benefits, investigation of the interdependence of projects in a system with respect to power production, flood control, irrigation, drainage, navigation and domestic and industrial use of water; preparation of basin plan and alternatives	600	-	600
1.3	Mainstream project planning - Comprehensive feasibility reports	5,900	5,500	400
1.31	Pa Mong			
1.311	Damsite geology	100	100	-
1.312	Feasibility report	4,300	4,300	-
1.32	Sambor			
1.321	Feasibility report	700	700	-
1.33	Tonle Sap			
1.331	Related studies on development of area around lake and the delta	400	-	400
1.332	Mathematical Delta Model	250	250	-
1.333	Feasibility report	150	150	-
1.4	Tributary project planning - Comprehensive feasibility reports	2,400	100	2,300
1.41	Prek Thnot (Cambodia)	100	100	-
1.42	Stung Pursat (Cambodia)	200	-	200
1.43	Stung Sen (Cambodia)	600	-	600
1.44	Se Done (Laos)	250	-	250
1.45	Nam Theun (Laos)	600	-	600
1.46	Lam Plai Mat (Thailand)	250	-	250
1.47	Upper Se San (Viet-Nam) (Transmission)	100	-	100
1.48	Upper Sre Pok (Six projects) (Viet-Nam)	300	-	300
1.5	Planning navigation improvement and minor works (Mapping of difficult rocky stretches on the basis of large scale aerial photographs, sweeping of channels, snag clearing, removal of dangerous rocks, improvement of rocky stretches, further improvement of shallow sections of the river and river entrances, further marking and improvement of channels, improvement in the design of existing craft, new craft designs including demonstration project, establishment of shipbuilding and ship repair facilities, port development and improvement of existing landings, comprehensive transport study with special reference to Mekong river navigation, study of alterations in the river regime and their repercussions on navigation, survey and study (economic and engineering) of ports and landing sites along the Mekong banks with appropriate recommendations)	2,500	-	2,500
1.6	Ancillary projects	4,300	520	3,780
1.61	Minerals surveys	900	400	500
1.62	Power market surveys			
1.621	Domestic power market survey	80	80	-
1.622	Regional power market survey	230	-	230
1.623	Global power market survey	40	40	-
1.63	Flood warning system	250	-	250
1.64	Irrigation experimental and demonstration farms	1,500	-	1,500
1.65	Public Health	300	-	300
1.66	Economic and social investigations	1,000	-	1,000
2.0	CENTRAL ADMINISTRATION, COORDINATION, FUND RAISING, AND PROMOTION OF CAPITAL INVESTMENT (15 professional posts plus the Advisory Board are provided for 1963; 16 professional posts have been requested for 1964 consisting (in addition to the Advisory Board) of: Executive Agent, Senior Engineering Consultant, two Associate Engineers, Chief Economist, Chief of Navigation Improvement, Chief of Power Market and Industries Development and Assistant, Chief Mineral Geologist, Chief Hydrometeorologist, Language Officer, and Administrative and Procurement Officer; and field staff of one Navigation Improvement Engineer, one Hydrographer and two Hydrologists)	3,750	205	3,545

1/ $205,000 included in Special Fund and BTAO projects approved through 1964; in addition $341,000 has been requested for inclusion in 1964 regular UN/ECAFE budget, in continuation and expansion of Mekong Project support in UN/ECAFE Budget for 1963 and earlier years.

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ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST

Committee for Coordination of Investigations
of the Lower Mekong Basin
(Cambodia, Laos, Thailand and the Republic of Viet-Nam)

PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

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COMMITTEE FOR COORDINATION OF INVESTIGATIONS OF THE LOWER MEKONG BASIN

PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

1. OBJECTIVES OF THE MEKONG DEVELOPMENT PROJECT

1.1 The Mekong Scheme seeks the development of the water resources of the Lower Mekong Basin, including mainstream and major tributaries, in respect of hydro-electric power development, irrigation, flood control, drainage, navigation improvement, watershed management, water supply and related developments.

2. MEKONG COMMITTEE

2.1 The Mekong Development Project is directly by the Committee for Coordination of Investigations of the Lower Mekong Basin, which was established jointly by the Governments of Cambodia, Laos, Thailand, and the Republic of Viet-Nam in October 1957 in response to a recommendation adopted by ECAFE at its thirteenth session in March 1957. The terms of reference of the Committee are set forth in a statute drafted by the Office of Legal Affairs at UN Headquarters, and formally adopted by the four riparian governments. The statute provides that the Committee shall consist of one member from each country "with plenipotentiary authority... to promote, coordinate, supervise and control the planning and investigation of water resources development projects in the Lower Mekong Basin." The statute empowers the Committee to "make requests on behalf of the participating governments for special financial and technical assistance and receive and administer separately such financial and technical assistance and take title to such property as may be offered by the technical or other assistance programmes of the United Nations, specialized agencies, friendly governments or other organizations." The Mekong Committee is thus the Board of Directors of an undertaking with many of the essential attributes of an operating public international corporation.

3. PRESENT PROJECT RESOURCES

3.1 In the spirit of international cooperation in the development of the Mekong, assistance has been made available to the Mekong Committee by 16 countries, 11 UN agencies, 3 Foundations, 3 private companies, and the four riparian

/ governments.

governments. In addition to numerous grants, funds are being advanced in a low-interest infrastructure type loan to one of the four riparian partners for the construction of one of the Mekong Development Project components. Resources as of 22 May 1963, including resources both granted and loaned, totalled $36,958,[illegible] equivalent. These resources, and the countries and agencies providing them, are listed in Annex I below.

4. SUMMARY OF ACTIVITIES 1957/1963

4.1 Work in the Mekong Development Project tends to fall in six broad categories, namely, basic data collection, basin planning, mainstream projects, tributary projects, navigation improvement, and ancillary projects. In the field of basic data collection, the Committee in 1958 adopted, and in 1959 commenced implementation of, a five-year (1959/64) programme of data collection recommended by the UN Technical Assistance Survey Mission under the leadership of Lt. Gen. R. Wheeler.[1/] The Wheeler Mission recommendations are reproduced below in Annex II. The Committee has in the four intervening years, with the welcome assistance of participating governments, UN agencies and other organizations, substantially completed very many of the recommendations, including reconnaissance of the major tributaries; installation and operation of a basin-wide hydrologic network; and aerial mapping of the mainstream, and of several major tributaries.

In the field of basin planning, the Committee has continued to use as a rough general plan the study[2/] prepared by ECAFE in 1947, and looked forward to revising and amplifying this when sufficient basic data would become available.

In the field of mainstream projects planning the Committee in 1957 decided that first priority should be attached to the Pa Mong, the Sambor and the Tonle Sap;[3/] in the intervening period substantial

/work has

1/ United Nations Bureau of Technical Assistance Administration (BTAO), formerly United Nations Technical Assistance Administration (TAA), Mission headed by Lt. Gen. R.A. Wheeler, "Programme of Studies and Investigations of Comprehensive Development - Lower Mekong Basin", TAA/AFE/10 January 1958.

2/ Flood Control Series No. 12, Development of Water Resources in the Lower Mekong Basin, 1957

3/ UNECAFE (Cambodia, Laos, Thailand and Viet-Nam), "Joint Meeting on the Lower Mekong Basin - Conclusions reached and recommendations made by the Joint Meeting", ECAFE/WRD/1, 3 May 1957, p.1.

work had been made towards the preparation of comprehensive project feasibility reports on these three projects. In the field of tributary projects, the Committee has had completed for it a detailed reconnaissance of all tributaries carried out as part of its basin data collection programme, and in addition has embarked upon the preparation of comprehensive feasibility reports on seven tributary projects; three of these comprehensive feasibility reports have been completed (the Nam Pong and Nam Pung in Thailand and the Nam Ngum in Laos.) In addition the self-contained hydro-electric portion of the feasibility report for the Prek Thnot project in Cambodia has been finished. The Nam Pong comprehensive feasibility report has been used as the basis of loan negotiations between one of the riparian partners, Thailand, and an assisting country, the Federal Republic of Germany, whereby $11 million have been advanced in a low-interest infrastructure loan which, along with $6 million appropriated by Thailand, havepaved the way for the construction of this first component project within the Mekong Development Project network. In the field of navigation improvement, hydrographic survey offices have been established or strengthened in the four riparian countries; a hydrographic survey of navigable stretches of the river from Luang Prabang to the sea has been commenced and the initial survey for improvement on many of these stretches completed; and a substantial quantity of navigation aids have been obtained. Many ancillary projects have been launched and in some cases completed, including mineral surveys, establishment and operation of pilot agricultural farms, fisheries studies, preparation of a mathematical model of the delta, study of economic and social aspects of the overall project of Lower Mekong development, manpower analysis, seismic surveys, and public health studies of schistosomiasis and malaria in certain project areas.

5. PROPOSED WORK PROGRAMME AND FINANCIAL PLAN FOR 1964/69

5.1 The Mekong Committee decided at its Nineteenth Session, 8-14 January 1963, that it would be useful to establish a forward programme of work and financial plan for the five years from 1 January 1964 to 31 December 1968. The Committee believes that this will be useful to the four governments which it represents, and also to the many governments, United Nations agencies, and other organizations co-operating in the project, or who may wish to embark upon, or increase, such co-operation.

/In briefest

In briefest summary, this Programme seeks within the coming five years to continue and extend the process of basic data collection; to prepare an amplified basin plan; to complete the comprehensive feasibility reports on the remaining of the seven tributary projects on which work has been taken up, and on five additional tributaries, for a total of 12 tributary project comprehensive feasiblity reports (Battambang, Prek Thnot, Stung Pursat and Stung Sen, in Cambodia; Nam Ngum and Se Done in Laos; Nam Pong, Nam Pung and Lam Plai Mat in Thailand; and Upper Se San and two of the Upper Sre Pok projects in Viêt-Nam); to complete, or virtually complete, comprehensive feasibility reports on three mainstream projects (Pa Mong, Sambor, and Tonle Sap); to progress in the long range programme of navigation improvement; and to move forward with a number of ancillary projects, completing a number of them.

5.2 This programme of work contemplates a five-year requirement in foreign currency of some $23,399,000 equivalent, of which some $7,535,000 equivalent has already been pledged or is in reasonable prospect, leaving a net requirement of some $15,864,000 to be found for the continuation and expansion during the coming five years of the Committee work of data collection, planning, navigation improvement, and ancillary projects; together with central administration, coordination, fund raising, and promotion of capital investment. A tabular statement of the proposed work programme and financial plan for 1964/69 is given below as Annex III.

5.3 With the foregoing as the programmes of investigations, project planning, navigation improvement and ancillary projects constituting its direct work programme, the Committee hopes to generate international and domestic investment for the construction, or the finalization of financial negotiations for construction, of a minimum of eight tributary projects by the end of the 5-year period; and to bring the three high-priority mainstream projects to the point where they can provide the basis for similar financial negotiations in the following period.

/6. THREE PRINCIPLES

6. THREE PRINCIPLES

6.1 The Committee decided at its Nineteenth Session in Janaury 1963 that in establishing a five-year programme for 1964/69, it would be particularly important : 1/

(a) To extend, deepen, and speed implementation of the recommendations contained in the Report of the Wheeler Mission;

(b) To take into account the abilities of the four riparian partners to participate in the work; and

(c) To retain unchanged the present organization consisting essentially of the Mekong Committee as the Board of Directors of the Mekong Scheme with a small secretariat for coordination and administration, and with full scope for project contributions by friendly governments, United Nations agencies, and other organizations.

6.2 With reference to (a) above, the Committee notes that in the provisional Work Programme which it has now established for 1964/69, all items listed below in Annex III are logical extensions or amplifications of all recommendations of the Wheeler Mission.

7. BASIC DATA COLLECTION

7.1 Mapping

7.11 Mapping of irrigable areas for the Pa Mong, Sambor, and Tonle Sap (Annex III below, Item 1.111)

7.111 One of the few Wheeler Mission recommendations on which very little work has been undertaken todate is supplementary spot levelling of irrigable areas. The irrigable areas to which the Committee now attaches highest priority insofar as mainstream projects are concerned are the irrigable areas of the Pa Mong, Sambor, and Tonle Sap projects. Mapping of these irrigable areas will consist of running spot levels on 1:20,000 rectified mosaics to produce 1 metre contours as required for irrigation planning. The cost of this mapping work was estimated in the Wheeler recommendations at $970,000. The present estimate places the figure at some $1,500,000.

/7.12

1/ Annual Report of the Committee for Coordination of Investigations of the Lower Mekong Basin to ECAFE (E/CN.11/607), para 44.01).

7.12 Mapping of nine additional promising tributaries (Annex III below, Item 1.112)

7.121 It will be recalled that the reconnaissance survey of tributaries undertaken by Japan[1/] shows 16 tributaries as promising for early development. Feasibility reports have been or are being prepared for seven of these 16 tributaries, with mapping provided under the Canadian programme or other sources. In order to provide basic data required for feasibility reports of the remaining nine tributaries within this group, and for the selection of the most promising of these, the Committee feels that it will be wise to prepare as soon as possible topographic maps at a scale of 1:20,000 with 2.5 to 5 metre contour intervals in the reservoir areas, and with one metre contour intervals in the irrigable areas. The total foreign currency cost of this task is estimated at $405,000. The Committee is discussing the possibility of assistance in this task with the United States.

7.13 Mapping of other possible mainstream reservoir areas and damsites (Annex III below, Item 1.113)

7.131 Under the Canadian Colombo Plan Mekong programme, mapping of the mainstream at a scale of 1:20,000 has been carried out to cover the entire Mekong river from the Laos/Burma border to Phnom-Penh. The width of the river valley included in the maps was decided by a consideration of the extent of the reservoir expected to be created by the mainstream project sites known to the Committee in 1959. In the case of the lower reach of the river, it was envisaged then to have a relatively low dam at Sambor, and possibly another lower dam at Stung Treng. The Khone project was to be developed essentially as a natural waterfall. In the final report submitted by the Japanese Team in September 1961, a relatively high dam was recommended at Stung Treng which would flood out the Khone Falls and part of the lower course of the Se Kong river. The proposed reservoir would extend over an area of about 6,100 square kilometres, mapping of most of which were not requested for inclusion within the Canadian programme. Detailed topographic maps of

/other

1/ Japanese Mekong Reconnaissance Team: "Report on the First Phase of Reconnaissance Survey on the Major Tributaries of the Mekong", Tokyo, May 1959; "Report on the Second Phase of Reconnaissance Survey on the Major Tributaries of the Mekong", Tokyo, September 1960; "Provisional Report on the Whole Reconnaissance Works of Major Tributaries of the Mekong", Tokyo, February 1961; "Comprehensive Reconnaissance Report on the Major Tributaries of the Lower Mekong Basin", Tokyo, September 1961.

other promising damsites are also required for basin planning. The foreign currency cost of mapping the Stung Treng reservoir area and 10 feasible damsites is estimated at $220,000.

7.2 Hydrology

7.21 Operation of existing basin network (Annex III below, Item 1.121)

7.211 The annual operation cost of the hydrologic network established under the US Programme of assistance[1/] to the Mekong Committee, with important supplements from France, India,[1/] New Zealand[1/] and the United Kingdom,[1/] is estimated at some $324,000 annually, which is being borne by the riparian countries. The cost in foreign currency in supplying necessary spare parts and replacements is estimated at $220,000 over a 5-year period. This requirement has been pledged by the United States commencing 1963, leaving the sum pledged within 1964/69 at some $220,000.

7.22 Establishment and operation of additional hydrologic stations on 9 tributaries (Annex III, Item 1.122)

7.221 Along with the mapping of 9 promising tributaries referred to in Para. 7.121 above, the U.S. Government has also undertaken[1/] to provide the Committee with the hydrologic equipment required for stations to be established on the same tributaries. The estimated foreign currency cost of this contribution has been set at $60,000; about half of this will have been spent during 1963, with the balance thus to fall within the first month of the 1964/69 period.

8. BASIN PLANNING

8.1 As stated in Para. 4.1 above, the Committee, for want of data, has not been able to revise and amplify the preliminary general plan prepared by ECAFE in 1957.[2/]

/The very

1/ Through the Colombo Plan.

2/ Flood Control Series No. 12 - 1957.

The very substantial progress which has been made in the intervening period in the field of hydrology and mapping however, means that an amplified basin plan can and should now be prepared, as recommend by the Wheeler Mission to be taken up about four years after commencement of work on the first of the Mission's recommendations. A decision requesting preparation of such an amplified basin plans was taken by the Committee at its Sixteenth Session[1/] in Phnom Penh in January 1962. The work of preparing the basin plan will broadly fall in two categories, as described in the immediately following paragraphs.

8.2 Field Investigations (Annex III below, Item 1.21)

8.21 The field investigations for preparation of the basin plan will include (in addition to the continued data collection programmes already described such as hydrology and mapping), detailed reconnaissance, geologic investigations, soil and land surveys, construction material surveys, and flowage damage surveys of some 12 project sites on the mainstream and 20 project sites on the major tributaries.

8.3 Preparation of plan (Annex III below, Item 1.22)

8.31 In the light of basic data, and of the results of field investigations of individual project sites, preliminary design and project lay-outs should be undertaken, including estimation of costs and benefits and alternative possibilities. A comprehensive analysis will be made of the interdependence of individual projects, both in the mainstream and major tributaries, in a system with respect to power production, flood control, irrigation, drainage, navigation, and domestic and industrial uses of water. This work should culminate in the preparation of a basin plan including alternatives.

/9. DEFINITION

1/ Annual Report for period ending 8 January 1962 (Document E/CN.11/WRD/MKG/L.45 Rev.1 Para 6.1).

9. DEFINITION OF A "COMPREHENSIVE FEASIBILITY REPORT"

9.1 At many points in the present document, and in particular in the two ensuing sections on Mainstream Project Planning and Tributaries Project Planning, the Committee makes frequent use of the term: "Comprehensive Feasibility Report". It may therefore be helpful to explain or to define this term. A comprehensive feasibility report is a detailed investigation of the technical possibility and economic desirability of a project layout and preliminary design, in order to determine with accuracy how much this would cost, what benefits might be reasonably expected, and the ratio between estimated costs and benefits and also financial returns. In the Committee's thinking, the fundamental conception of the term "Comprehensive Feasibility Report" is that such a report, when completed, becomes the basis for financial negotiations, both domestic and international, which hopefully may conclude with the decision to construct the project.

10. MAINSTREAM PROJECT PLANNING (Annex III below, Item 1.3)

10.1 As noted above, the Committee in 1957 assigned first priority to three mainstream projects (Pa Mong, Sambor and Tonle Sap) and hopes ultimately to develop these in a system of five or more mainstream projects. A brief description of each of the three first priority mainstream projects, of planning progress to-date, and of the foreign currency requirements over the coming 5-year period, 1964/69, is given in the following paragraphs.

10.11 Pa Mong (Annex III below, Items 1.31, 1.311, 1.312)

10.111 The Pa Mong mainstream project is conceived of as providing the principal reservoir within the Mekong system, and will make possible control of the river from above Vientiane down to the sea. On the basis of present data, it is believed that this project could irrigate something like one million hectares of land in the north-east of Thailand and in Laos, and could have, if desired, an installed capacity of something like 1,600,000 kW. Its reservoir would have a capacity some 2½ times that of the largest man-made reservoir so far constructed in North America (Lake Meade behind Boulder Dam).

/10.12

10.12 Damsite Geology. The task of carrying out the geologic investigation of the Pa Mong damsite has been pledged by Australia.[1] In the autumn of 1962 the Australian Snowy Mountain Mekong Team composed of nine engineers, geologists and technicians arrived in the area to resume this work. The team installed itself in its camp on the Thai bank of the river and, with the assistance of 3 Thai and 2 Laos engineers and a labour force of some 20 persons, commenced drilling early in December. As envisaged in the Australian reconnaissance report of 1960, adopted by the Committee, the first work is being devoted to drilling at the two alternate damsites, with recommendations to be submitted as soon as possible. The second and final period of the Australian work will then be intensive drilling along the dam axis selected by the Committee in the Light of the first phase findings.

10.121 Other Pa Mong Investigations. Other work (in addition to the basic data collection described above) already completed in connection with the Pa Mong Project includes a partial soil survey of some irrigable areas carried out by France in 1960, a seismologic survey carried out by UNESCO in 1961, and a preliminary estimate of maximum flood prepared in 1961 by the Committee's WMO Hydrometeorologist.

10.122 Comprehensive Feasibility Report. The United States[1] has agreed to prepare the comprehensive feasibility report of the Pa Mong project. The work commenced in 1961 with an initial visit by a U.S. Bureau of Reclamation team. This initial visit was followed by a two-month visit in 1961 by a USBR team of three specialists in respectively project planning, project design and agricultural economics. The U.S. team submitted a report which outlines a programme for conducting the Pa Mong investigations at a total cost of $5 million excluding local costs and recommends that first efforts be directed toward land classification surveys and related agricultural studies. A Plan of Operation, or Project Agreement, defining the scope of work in scheduled to be signed by members of the committee and the representative of U.S. government toward the end of May 1963.

10.2 Foreign Currency Requirement for 1964/69

10.21 It is estimated that the remaining main work of the Australian damsite geological team and the work to be undertaken by the U.S. will require funds as /estimated

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1/ Through Colombo Plan.

estimated in Annex III below, Items 1.311 and 1.312. The Committee hopes that all or virtually at any rate the bulk of the work of preparing the Pa Mong Comprehensive Feasibility Report will be completed by the end of the 5-year Programme herein contemplated.

10.3 Sambor (Annex III below, Items 1.32, 1.321)

10.31 The Sambor Project in Cambodia is conceived of as a "run-of-the-river" power plan project, involving a dam to utilize the natural flow of the Mekong river with little reservoir storage. Hydrologic data indicates that the Sambor, as such a run-of-the-river project, could have, if desired, an installed capacity of some 600,000 kW or more, from which at least 400,000 kW could be generated continuously. When augmented by the flow regulated by the Pa Mong, it can generate a million kW of continuous power. In addition, the project would have an irrigation potential by gravity flows for something like 100,000 hectares. The electric power could be used not only for industrial and domestic power and lighting purposes within Cambodia, and in other riparian countries as well, but also could be used for extensive pumping in connection with land reclamation in the delta, both in Cambodia and in the Republic of Viet-Nam.

10.311 Damsite Geology. The Australian[1/] Snowy Mountains Hydro-electric Authority Mekong team has already completed geological exploration at the damsite, including diamond drilling at the abutments and in the river bed; and have informed the Committee of their conclusions that the damsite is geologically satisfactory.

10.32 Comprehensive Feasibility Report. A Japanese preliminary survey team for the Sambor Project was organized in October 1961, and sent an operational staff team for field investigations in January 1962. These field investigations were completed early in the same year, with local facilities provided by the Government of Cambodia; and a report on this preliminary work was prepared and submitted to the Committee. Further work is being carried out by Japan under the "Japanese Overseas Technical Cooperation Agency" in 1963 towards preparation of the comprehensive feasibility report. The Committee greatly hopes that the Japanese Government will be able to continue its work through ultimate preparation of a comprehensive feasibility report, covering all technical and economic phases of the Project. The Committee understands that the approximate cost of completing the comprehensive feasibility report will be in the neighbourhood of $700,000.

1/ Through Colombo Plan.

/10.4

10.4 Tonle Sap Project (Annex III below, Items 1.33, 1.331, and 1.332)

10.41 The Mekong river during 5 or so months in each years, from about the beginning of the rainy seasion, reverses the flow of the Tonle Sap so that water from the Mekong flows into the Great Lake. In October the flow of the Tonle Sap again reverses with water for the subsequent approximate 7 months flowing out of the Great Lake, down the Tonle Sap, thence down the Mekong into the China sea. Several problems exist in this general area, each of which is steadily becoming more acute. One problem has to do with the apparent marked decline in the fish catch in the Great Lake, which historically has been a major source of protein for Cambodia, related to the problem of the fisheries, and constituting a problem in itself, is the apparent gradual silting up of the Great Lake. A third problem arises in that the law water discharge of the Mekong river from Phnom Penh to the China sea involves for a month or more in most years a lowering of the water level to such a point as to render navigation difficult for ocean-going vessels moving to and from Phnom Penh. A fourth problem concerns flooding in Phnom Penh and on down through the delta to the sea; this flooding appears to be becoming more of a problem with the passing of the years, not hydrologically, but because general economic development is gradually adding values to the area, with flood destruction thus acquiring a greater and greater importance economically. Finally there is the problem of unreclaimed land, of more than one million hectares, in the delta, largely in Viêt-Nam, at present rendered sterile by flooding and inadequate drainage or salt water intrusion. The conception of the Tonle Sap project centers upon the installation of a gated barrage across the Tonle Sap. By closing this barrage at the beginning of the rainy season except during the period of initial migration of the fish, the initial low floods would be diverted and not be allowed to enter the Great Lake; they would instead flow down the river into the sea without causing any damage. Fairly late in the flood season, the gates could be opened, allowing the high flood from the Mekong to flow through the Tonle Sap into the Great Lake, bringing it to approximately its present high water annual point, thereby reducing the magnitude of peak flood and flood damage in the delta, both in

/Cambodia and

Cambodia and in Viêt-Nam. It is then anticipated that the gates would be closed at the end of the rainy season, with water being retained in the Great Lake, at its present high water level, until the advent of the driest months of the year. By thus considerably increasing the depth of the lake for most of the year, and by even at its lowest period allowing the level to sink only to within about one meter above its present low water depth, it is believed that conditions for fish life would be greatly improved, thereby not only halting the present decline in fish catch, but permitting increased yields. By releasing water from the Great Lake in the driest months, the low-water of the Mekong and the Bassac would be increased, perhaps by as much as a half meter, thereby assisting navigation through increasing the navigable depth of the low water channel. The increased low water flow would similarly prevent or reduce the present degree of salt water intrusion from the sea, making possible, it is hoped, the progressive reclamation of considerable areas in the delta, especially if this could be undertaken in conjunction with pumping for drainage made possible by the Sambor project (See para. 10.31 above) Progress to-date, and anticipated forward requirements, on the various facets of the work which the Committee hopes will culminate in the construction and beneficial operation of the Tonle Sap barrage is given in the following paragraphs.

10.42 Barrage Design

10.421 A team provided by India[1/] from its Central Water and Power Commission has made good headway in collaboration with Cambodian authorities and others, in the preparation of the Tonle Sap barrage design; and anticipates completing this by the end of 1963, i.e. just prior to commencement of the 5-year work programme herein established.

10.43 Comprehensive Feasibility Report

10.431 The Tonle Sap Comprehensive Feasibility Report, like all reports of this character (see section 9 above) will require many collateral investigations and studies to produce the full technical and economic data on which the comprehensive feasibility report must be based This includes[2/]:

/mapping

1/ Through the Colombo Plan.

2/ Plan of Operation: Tonle Sap Comprehensive Project Report including barrage design and cost estimates (E/CN.11/WRD/MKG/R.45 Rev.3 of 5 June 1962, Appendix F).

mapping of the Great Lake to determine the capacities of the lake at various levels; gauging of discharge of important tributaries in various months; measurement of silt content carried by tributaries into the lake and in the Great Lake and Tonle Sap at various periods, and study of sedimentation; preparation of a plan of the Tonle Sap with levels of the river banks, dimension of openings in roads; measurement of discharge at proposed barrage site, and cross-sections during high flood level and flood slopes; and study of the discharges of the Mekong and Bassac along the river courses to the sea at salient points; cross-sections and topographic map showing planimetric data concerning the river and its outflowing branches, major canals, roads and boundaries of the flooded area, and elevations of river banks; crop and vegetation; the tidal range, and velocity distribution at selected points in the tidal reach during various seasons; rainfall observation for available years; detailed fish studies indicating fish habits and the optimum method of operation of the proposed barrage from the point of view of increasing fish production; miscellaneous studies on navigation channels, salinity, silting and shifting of channels; past data on storms and tidal waves, sedimentation data concerning both beds and bank material; a mathematical model of the delta; a land management investigation programme; soil conservation studies; hydrologic survey and navigation improvement particularly between Kampong Preas and Kampong Tkel; and, if possible, a hydraulic model of the delta.

10.432 A very substantial amount of the work involved in assembling the data referred to in the preceding paragraphs has been pledged and is under way, and certain blocks of it will be completed by the end of 1963. Work already under way with the close collaboration of Cambodian officials and other personnel, or pledged, includes an exhaustive fisheries study by France, sedimentation and related hydrologic study by France and the International Atomic Energy Agency, establishment of the hydrologic budget of the Lake by the Chief Hydrometeorologist supplied to the Committee by the Special Fund and the World Meteorological Organization, and the

/Preparation

preparation of a mathematical delta model under the UN Special Fund grant to the Mekong Committee with UNESCO as Executing Agency. A major agricultural pilot project being planned at My Phuoc in the delta in Viet-Nam as a French contribution to the Mekong Committee, along with two pilot experimental and demonstration projects which the Committee seeks for the Trans-Bassac and Plaine des Joncs areas also in the delta in Viet-Nam, would also help substantially in ascertaining land utilization potentialities. An approximate value of the work which has been pledged under the foregoing headings, along with the balance of the Indian pledge[1/] to prepare the comprehensive feasibility report (after assembling by other programmes of the component data), totals some $400,000 equivalent in foreign currency, as noted in Items 1.332 and 1.333 in Annex III.

10.433 The remaining requirement for related studies is estimated by the Committee at some $400,000 equivalent in foreign currency as stated in Item 1.331 in Annex III, plus considerable share in the mapping, estimated at $1,500,000 equivalent listed in Annex III at Item 1.111, along with a share in the mapping of mainstream reservoirs as listed in Annex III at Item 1.113; plus a share in the field investigations and preliminary lay-out of projects listed at some $1,840,000 equivalent under basin planning in Items 1.21 and 1.22 in Annex III; plus development of the Trans-Bassac and Plaine des Joncs pilot farms, at a foreign currency cost of some $600,000 listed at Item 1.64 in Annex III.

11. TRIBUTARIES PROJECT PLANNING (Annex III below, Items 1.4 through 1.48)

11.1 The 1957 ECAFE Study, Development of Water Resources in the Lower Mekong Basin, while dealing principally with mainstream projects affecting more than one country, urged that planning should cover the "entire river basin, including the mainstream and its tributaries". The Mekong Committee, consistently with the Joint Declaration of Cambodia, Laos, Thailand and Viet-Nam broadly endorsing the 1957 ECAFE study, seeks to parallel Mekong Scheme work on mainstream projects with similar work for the development of major tributaries — partly because of the desirability of coordinating overall planning; partly because tributary projects will cost much less and require much less time to prepare and construct than mainstream projects; and partly because the Committee feels experience gained in developping tributaries will be

/ invaluable

invaluable in dealing with the larger mainstream undertakings. The Committee, however, has never expressed the view that it should exercise responsibility for all lower Mekong tributary developments, and indeed in three of the countries several welcome tributary projects are being developed outside the formal purview of the Committee. The Committee welcomed the 1958 offer of Japan to conduct reconnaissance of all the tributaries then not yet reconnoitered. (Para. 9.2 above). On the basis of the First Phase Japanese Report, submitted in May 1959, four tributaries --- one in each of the four riparian countries --- were selected by the Committee at its Fifth Session 16-19 June 1959, as the basis of an application to the UN Special Fund for financial assistance for the preparation of comprehensive project reports, to bring each of the four tributary projects to the point where finance for construction could be negotiated. In December 1959 the Special Fund acted affirmatively on the Committee's application. A Plan of Operation was worked out, pursuant to which engineering companies were employed for the planning work. Subsequently contributions from other countries (Israel and Japan) made possible the preparation of comprehensive feasibility reports on three additional tributaries, for a total of seven.

11.11 The seven tributries on which arrangements have been completed for the preparation of a comprehensive feasibility report are the Battambang and Prek Thnot in Cambodia, the Nam Ngum in Laos, the Nam Pong and Nam Pung in Thailand, and the Upper Se San and Upper Sré Pok in Viet-Nam. On two of these, the Nam Pong and the Nam Pung in Thailand, the comprehensive feasibility reports have been completed and financial negotiations have been finalized to enable construction to take place very soon. The comprehensive feasibility report on the Nam Ngum in Laos, and on the dam and hydroelectric portion of the Prek Thnot in Cambodia, have also been completed.

11.12 During 1964/69 the Committee greatly hopes to complete comprehensive project reports on seven additional tributary projects. Subject to data to be obtained from new hydrologic stations and mapping on nine promising tributaries (Items 1.112 and 1.122 in Annex III), the Committee anticipates

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that the additional tributary projects will be on the Stung Pursat and Stung Sen in Cambodia, the Se Done and Nam Theun in Laos, the Nam Lam Plai Mat in Thailand, and two or more additional projects on the Upper Sré Pok in Viet-Nam. The Committee hopes to find some $2,300,000 equivalent in foreign currency for this work to be carried out in the coming five years (as listed in Items 1.4 to 1.48 in Annex III).

12. NAVIGATION IMPROVEMENT (Annex III below, Item 1.5)

12.1 At its 10th Session in May 1960, the Committee adopted a navigation improvement programme, which was based upon recommendations of the Wheeler Mission, and upon the principal conclusions of the report[1/] submitted to it in 1959 by the UN Technical Assistance Administration. The Committee agreed with the author of that report that it is "convinced that .. the development of inland navigation on the Mekong will, without doubt, bring about great improvements in the surface communications of these countries ...make possible the economic development of regions in the four countries concerned which are at present more or less inaccessible ... permit the development of mineral resources which would otherwise not be possible due to the high cost of rail or road transport over long distances...".

12.2 Subsequently the Committee was able to obtain from Great Britain a pledge in the amount of $264,000 equivalent for assistance in navigation improvement work; an allocation of $347,000 from the Special Fund for the commencement of the hydrographic survey; and a hydrographic survey of the delta from the United States.

12.3 In January 1963, as part of the 19th Session of the Committee, the Committee appointed an Ad Hoc Navigation Sub-committee to review progress to that point, and to consider a forward five-year programme. The

/sub-committee

1/ A.L. Van Riet, "Development of Inland Navigation in the Lower Mekong Basin", report prepared under the auspices of the United Nations Technical Assistance Programme for the Committee for Coordination of Investigations of the Lower Mekong Basin, 1959; pages 3 and 4.

sub-committee reiterated the basic policy and objectives that the Committee had adopted in May 1960, and recommended[1] for the five-year period 1964/69 the following: mapping of difficult rocky stretches on the basis of aerial photographs on a scale of 1/8,000, with contours at 50 cm intervals where necessary; sweeping of channels, snag clearing, removal of dangerous rocks, improvement of rocky stretches and further improvement of shallow sections of the river and river entrances with sandy shoals; further marking and improvement of channels; improvement in the design of existing craft; development of new craft designs, including a demonstration project; establishment of shipbuilding and ship repair facilities; port development and improvement of existing landings; a comprehensive transport study, with special reference to Mekong river navigation; study of alterations in the river regime and their repercussions on navigation; survey and study (economic and engineering) of ports and landing sites along the Mekong banks, with appropriate recommendations. The Committee adopted the Report of the Ad Hoc Navigation Improvement Sub-Committee at its 20th Session (Special) 6-20 March 196

12.4 The Committee estimates that it will require some $2,500,000 equivalent in foreign currency, including related equipment and technical personnel (but not including the three posts included in Section 19 below, and at Item 2, in Annex III), to advance in 1964/69 in this work along the lines recommended by the Sub-committee as described in the preceding paragraph. (See also Annex III below, Item 1.5).

13. ANCILLARY PROJECTS (Annex III below, Item 1.6 to 1.66)

13.1 It may be recalled that many specific surveys are included in the Wheeler programme, such as flowage damage surveys, construction material surveys, soil surveys, geological investigations; and related and special studies in agriculture, minerals, transport, the power market, and general economic problems. The White Mission report[2] also recommended a series of studies in the economic and social fields. Very many of Wheeler and White Mission recommendation investigations are incorporated within other studies described in the previous portions of this report, especially under feasibility

/reports of

1/ Report of the ad hoc Sub-committee on Navigation Improvement (E/CN.11/WRD/MKG/L.7[illegible] (Rev.1) of 12 February 1963.).

2/ Gilbert White, Egbert de Vries, Harold Dunkerley, John V. Krutilla, Economic and Social Aspects of Lower Mekong Development.

report of individual projects. For example, geological investigations and boring of damsites are being carried out as part of the feasibility study of the three mainstream projects, and within the tributary feasibility reports. As another example, each comprehensive feasibility report, as defined in section 9 above, and with application to all mainstream and tributary feasibility reports, looks in very great detail at the economic as well as the technical feasibility of each of the projects. The Committee has, in addition, embarked upon, or contemplates embarking upon, a number of ancillary studies for the lower basin as a whole, and thus includes these within its 5-year Work Programme for 1964/1969. Brief descriptions of this work are given in the following paragraphs.

13.2 Mineral Surveys (Annex III, Item 1.61)

13.21 Aside from the survey of mineral resources in North-East Thailand and Laos financed by the Special Fund and the basin wide prospection of bauxite under French aid, most of the mineral surveys are currently carried out under bilateral programme with individual riparian countries. However, a certain amount of work to systematically record mineral resources in the basin as a whole and to fill the gaps in individual programme will be necessary. It is estimated that a sum of $500,000 in foreign currency will be required in 1964/69 for this work.

13.3 Power Market Surveys (Annex III below, Items 1.62, 1.621, 1.622, 1.623)

13.31 Among the three categories of power market survey, namely, domestic, regional and global, the Committee has already obtained assistance on two of them; domestic and global. It is hoped that assistance can be attended to the Committee in carrying out the regional market survey, the cost of which is estimated at $230,000 in foreign currency.

13.4 Flood Warning System (Annex III below, Item 1.63)

13.41 Following the study undertaken by the experts provided by France on flood forecasting and warning, it is felt that a flood warning system could advantageously be established in the lower basin. The cost for equipment and foreign experts in establishing and initially operating the system is estimated at $250,000 over 5 years.

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13.5 Irrigation Experimental and Demonstration Farms (Annex III below, Item 1.64)

13.51 The Committee has arranged for the planning of four irrigation experimental and demonstration farms, in connection with the Battambang tributary project in Cambodia, the Nam Ngum tributary project in Laos, the Nam Pong tributary project in Thailand, the Upper Sre Pok tributary project in Viet-Nam. Of the foregoing, the planning work has been made possible with UN Special Fund allocations. In addition, funds have been made available by the UN Special Fund for the construction and operation of one of these farms, that in the Vientiane Plain in Laos, as part of the Nam Ngum tributary Project. As noted in Paras 10.432 and 10.433 above, the Committee also hopes to arrange for the planning and operation of two pilot farms in the Trans-Bassac and Plaine des Joncs areas in the delta in Viet-Nam. The Committee hopes to obtain funds, in an estimated amount of $1,500,000 equivalent in foreign currency, or some $300,000 per project, in order to make all five projects (the farms in the Battambang, Nam Pong (Kalasin), Upper Sre Pok, Trans-Bassac, and Plaine des Joncs areas) operational as demonstration and pilot projects during the coming 5-year period. And as noted above, the Committee hopes that My Phuoc in the delta can be brought into operation during the five years with no additional foreign funds beyond those already being used for a dredge. My Phuoc with the Vientiane Plain Farm as part of the Nam Ngum project in Laos, bring the total to seven.

13.16 Economic and Social Studies (Annex III below, Item 1.66)

13.161 In addition to the very considerable economic analyses being carried out, and to be carried out, in connection with other work described above, and in particular in connection with the preparation of comprehensive feasibility reports for mainstream and tributary projects, the Committee would like to be able to carry out further work in the economic field. Experience indicates that it would be extremely useful if the Committee's staff could assemble continuously up-to-date and reliable economic data, as one of the sources of information available to the teams preparing comprehensive feasibility reports. Increasingly the Committee will wish to examine such matters as the relation between water management and taxation, the incidence of local costs in construction projects, domestic and extra-regional investment potentials, and the prospective relationship between investment programmes and foreign trade and exchange earnings. The Committee would like to be able to embark upon original work in these fields, and also to assemble and analyse on a basin-wide basis the very considerable amount of material which already exists within the four riparian countries. It is estimated that an amount of $1 million in foreign currency will be required for such studies (Item 1.66 in Annex III).

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14. TRAINING ACTIVITIES

14.1 The Mekong Committee attaches very great importance to training activities in all the areas of its work. This can be noted in Annex I, where a substantial proportion of all component projects are footnoted to indicate that they include fellowships. Training also takes place in the relationship between project managers provided under assisting programmes, and counterpart project managers provided by the Committee. In formulating its forward work programme for 1964/69, the Committee wishes to emphasize that it desires to continue and attend such training activities, possibly adding additional training work in the form of in-service training programmes, and occasional seminars.

14.2 An important objective of training is to work toward gradual take-over by riparian personnel of the functions of central administration, coordination, fund raising, and promotion of capital investment; the Committee notes that for several years one of the professional posts in the Office of its Executive Agent has been filled by a riparian; and that commencing in 1963, two of the 16 posts (one Associate Engineer and one Associate Hydrologist) are so filled.

15. FLEXIBILITY

15.1 The Committee, in establishing the present proposed Work Programme and Financial Plan for 1964/69, notes its intention to maintain reasonable flexibility within the Programme. The Committee wishes to establish targets and guidance for its staff, and for the countries, UN agencies and other organizations collaborating with it; but it does not intend that these shall become a straight-jacket. The Committee accordingly anticipates revising this 5-year programme from time to time, in the light of the information which will become available and the conclusions which will be reached as the work progresses.

16. NOTE ON NEED FOR CASH

16.1 The Committee draws attention to the fact that the great bulk of resources which have been available to it, or are likely to be made available to it in the coming five years, are tendered in services and in kind. The task of the

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Committee and its staff is to coordinate these various component projects so that they fit together in an effective and timely manner. It often happens, however, that gaps are found to exist as between component projects, or within component projects, which create difficulties and delays in the work related to these or other component projects. Similarly, it often is found, with respect to a completed study or analysis, that a slight amount of additional work would greatly enhance the value of the component project, perhaps in and of itself, perhaps in relation to other component projects. A vast hydrologic data collection programme costing several million dollars may be completed and the team may have departed; historical data in one particular case, which could not be located when the basic investigation was taking place, comes to light; a few hundred dollars are required to photograph and reproduce the new data. A $50,000 radio network is installed; its usefulness could be greatly increased if a few hundred dollars for new aerials could be obtained. A team preparing a comprehensive project report on a tributary under a contract of some $200,000 may discover, to everyone's gratification, that more water is available than had originally been thought, meaning that irrigation could be planned for several additional thousand hectares; but several thousand dollars will have to be found to make possible the additional basic mapping. It is not always possible to find a donor to provide exactly the equipment and services needed in cases like these, of which many continously occur; indeed, the difficulty of finding donors often appears to be in inverse proportion to the dimension of assistance required. "Shopping" for donors of such individual items is often a wasteful and time-consuming process. The Committee thus feel that the efficient operation of its work, and the effective and timely utilization of all resources available to it, require that some portion of its resources should be in cash, available for contingencies, and for unexpected new work requirements. Such cash resources might be in diverse currencies, and might be made available in some cases only to a particular component project or projects and in other cases to the Mekong Development Project as a whole. Such cash contingency resources might consist in part of funds held by contributing governments as part of their Mekong Development Project cooperative programmes

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as in already done in the case, for example, of the UK navigation improvement support programme. In some cases a principle of reciprocity might be established: the Committee could ask Contributing Country A to indent upon its Mekong contingency account to eke out certain items in the Mekong work of Contributing Country B; and then at another time, depending on needs and the status of accounts, similarly call upon Contributing Country B to help with the Mekong Programme of Contributing Country A. In other cases, such resources might be held in a central account at the Committee Headquarters in Bangkok; to the extent, as in the latter case, that funds were held (whether in diverse currencies or otherwise) in a central Committee account, the Committee would wish its Executive Agent in utilizing such funds, to adhere to appropriate budget, procurement, accounting and auditing procedures.

17. LOCAL COSTS AND COUNTERPART CONTRIBUTIONS

17.1 The Mekong Committee takes considerable pride in the extent to which the four riparian governments have themselves advanced local costs and counterpart contributions. It will be noted in the present list of resources given below in Annex III, which total some $36.9 million equivalent, that some $12 million, or nearly one third, have been advanced or pledged by the four riparian governments. If funds made available for construction are excluded, i.e. some $20 million equivalent, then of the remaining $16.9 million equivalent devoted to data collection, planning, and ancillary projects, some $2.9 million equivalent, or a bit more than one-sixth, has been advanced or pledged by the four riparian governments, in cash and in kind. The Mekong Committee fully intends to continue to do its utmost to find ways and means of maximum local participation in the Mekong Development Project. At the same time the Committee feels obliged to reiterate the statement made by its then-Chairman to ECAFE at Sixteenth Session of ECAFE in Bangkok in 1960. It will be recalled that at that time the Thai member in the Committee, speaking as Chairman, on behalf of the Mekong Committee, said[1/] that the Committee's single most difficult problem "arises in connexion with what are called local costs, that is the expenditures in cash, and in services and goods, which our four Governments are investing in this project. Everyone concerned, certainly including our four Governments, likes the principle of local contributions being added to international

/contributions;

1/ E/CN.11/WRD/MKG/R27 Corr.1, Annex 3.

contributions; and I have very great pride in reminding you that our four Governments have already pledged local support to the extent of approximately $1,000,000 for this work already under way. But we all feel that the attractiveness of this principle, as a principle, must not blind any of us --- either within the four riparian countries or among the donor countries or within the United Nations family --- to the fact that our means, fiscal and physical, are exceedingly slender. We thus must urge that, as a matter of policy, conviction, and practical possibilities, the assistance being extended to this project carry with it minimum requirements for counterpart contributions."

17.2 The Committee continues to urge that assistance extended to the Mekong Development carry with it minimum requirements for counterpart contributions.

18. ADVISORY BOARD (Annex III below, Item 2.0

18.1 One of the key recommendations of the Wheeler Mission UN/TAA Report of 1958 (See Annex II below) urged the appointment of a panel or board of persons of great experience in water resources development who could keep in touch with the broad progress and the more difficult problems of Mekong Development Project work, and advise the Mekong Committee on specific questions presented to it. The Board at present consists of:

Mr. Paul Bourrières (France; services made available through UN BTAO);

Sir Robert G.A. Jackson (United Kingdom; services made available through UN BTAO);

Mr. Filemon Rodriguez (Philippines; services made available through UN BTAO);

Lt. Gen. R.A. Wheeler (Ret.) (United States; services made available by International Bank).

Mr. Kanwar Sain - Secretary Member (India; services made available through the UN Special Fund, with Mr. Kanwar Sain also filling the full-time post of Chief Engineering Consultant of the Committee).

18.11 The Committee desires to add an investment economist to the above group of its advisers for a total of six.

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19. ADMINISTRATION, COORDINATION, FUND RAISING AND PROMOTION OF CAPITAL INVESTMENT (Annex III below, Item 2.0

19.1 The Committee at its session of 15-18 December 1958 recorded its view[1] that "it would be desirable to have an Executive Agent of the Committee, with necessary ancillary staff, stationed in Bangkok, who would have authority to take decisions on a day-to-day basis" on its behalf. At its Fourth Session 27 February - 4 March 1959 the Committee adopted detailed terms of reference for the post of Executive Agent, including the following:[2] "The Executive Agent will advise the Committee... and through the Committee as may be appropriate, the Governments of Cambodia, Laos, Thailand, and Viet-Nam, on the administrative and technical coordination of plans for the overall development of the basin. He will assist the Committee in carrying out the day-to-day coordination of the engineering, economic, agricultural and other studies undertaken at the request of the Committee by the United Nations and specialized agencies and also under bilateral programmes and will report to the Committee... on the progress of the work." Specific duties laid down by the Committee include preparation of requests for financial and technical assistance; follow-up on such requests; supervision of expert's services and field projects undertaken by the United Nations and the specialized agencies and under bilateral programmes of individual countries; preparation of programmes of work for the effective utilization of these experts and services; and delineation of questions on which to ask advice of the Advisory Board. The Executive Agent is thus the General Manager of the Mekong Development Project, in charge of administration and coordination of the entire undertaking under the Mekong Committee as the Board of Directors. The Executive Agent is an officer of the United Nations, and expected to act as such,

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1/ Proceedings of the Special Session of the Committee, 15-18 December 1958 (E/CN.11/TRD/MKG/R.10, Para 84).

2/ Summary of Conclusions Reached at the Fourth Session of the Committee, 27 February - 4 March 1959 (E/CN.11/TRD/MKG/R.13 of 4 March 1959, para. 6(d))

including observance of the obligations specified in Article 100 of the Charter; and the Committee provided in the Executive Agent's terms of reference that he shall receive policy guidance from the Executive Secretary of ECAFE.

19.2 As of 1963, 16 professional posts were available for the task of central administration, coordination, fund raising and promotion of capital investment. These 16 posts were those of Executive Agent, Senior Engineering Consultant, Chief Planning Officer, two Associate Engineers, Chief Economist, Chief of Navigation Improvement, Chief Hydrometeorologist, Interpreter/Editor/Translator, and an Administrative and Procurement Officer; and (in the field, two Associate Hydrologists, two Navigation Improvement Officers, and two Hydrographers). Eighteen core professional posts are sought for 1964/69 consisting of: Executive Agent, Director of Engineering Services (and Secretary-Member of the Advisory Board), Director of Economic and Social Studies, Director of Navigation Improvement, Chief of Administration, Chief Planning Officer, Chief Hydrometeorologist, Assistant Hydrometeorologist, Design and Costing Officer, Construction Officer, Laison Engineer, Waterways Engineer, Hydrographer, Industries and Power Marketing Development Advisor, Agricultural Development Officer, Languages Officer, Procurement Officer, and General Services Officer.

19.3 The Committee's staff and Advisory Board have todate been made available from within the UN family - UN/ECAFE, the Special Fund, the Bureau of Technical Assistance Operations, and the International Bank. This includes the two riparian personnel now on the Committee's staff, which two posts are carried in respectively the UN/ECAFE budget and the regional BTAO programme. The Committee feels that its requirement for complete economic objectivity and strict political impartiality in the staff which assists it in administration, coordination, fund raising and the promotion of capital investment can best be met by maintaining this central relation with the United Nations.

20. NOTE ON INVESTMENT AND CONSTRUCTION

20.1 As noted, the Mekong Committee has been established by the four riparian governments "to promote, coordinate, supervise and control the planning and investigation of water resources development projects in the Lower Mekong Basin". The Programme of Work and Financial Plan herein established by the Committee for 1 January 1964/1 January 1969 accordingly is devoted to data collection, planning and the promotion of investment for construction; and not (apart from certain navigation improvement aids) to construction itself. However, the Committee,

/ the four

the four governments which it represents, and the Committee's staff, regard the entire effort as meaningful only to the extent that the planning leads to investment and physical construction. The Committee thus wishes to record its hope that during 1964/69, financing will be arranged for and construction undertaken and in most cases completed on at least eight tributary projects, plus the major land reclamation project at My Phuoc in Viet-Nam. In the light of present planning information (in some cases well advanced, and in some cases only beginning), the Committee believes that the eight tributaries on which projects by 1 January 1969 will be under construction, or on which construction will have been completed, will include the Stung Battambang and Prek Thnot in Cambodia, the Nam Ngum and Se Done in Laos, the Nam Pong and Nam Pung in Thailand, and the Upper Se San and Upper Sre Pok in Viet-Nam; plus the My Phuoc project in Viet-Nam. The Committee's estimates, based on feasibility or preliminary reports, indicate that the foreign currency requirements for the foregoing would be some $144 million. Of this some $14 million equivalent is already in hand, leaving a target balance of some $133 million equivalent to be raised, plus the related local costs. The Committee attaches equal importance to its intention to advance during the 5 years 1964/69 in respect to mainstream projects, so that the basis will be laid for seeking finance for the actual construction of these three projects; cost estimates on mainstream projects, as their feasibility reports are not ready, are necessarily very rough; but in the light of the present planning estimates, the foreign currency cost of these three projects would appear to be in the neighbourhood of $772 million, again plus local costs. The Committee considers important the relationship between (a) the estimated cost of the 5-year Work Programme and Financial Plan herein proposed; and (b) the net target foreign investment figure sought for these five years, plus the foreign investment target figure for the 3 mainstream projects, preparation for which the Committee hopes to complete, or nearly complete, within the same 5-year period, namely a target foreign investment net figure of something in the neighbourhood of $905 million. It will be noted that (a) is some 2.5% of (b) --- a ratio which the Committee considers eminently reasonable in terms of applicable river basin development experience throughout the world.

/21. ADOPTION

21. ADOPTION OF PROVISIONAL WORK PROGRAMME AND FINANCIAL PLAN

At its Twentieth Session (Philippines 6-20 March 1963), the Committee provisionally adopted this programme as a working document, but undertook to review it at least once annually during the coming five years, inter alia with reference to priority. At its Twenty-First Session (Bangkok 22-24 May 1963) the Committee introduced several changes, notably in adding the proposed Trans-Bassac and Plaine des Joncs pilot experimental and demonstration farms in the delta in Viet-Nam, and in altering its proposed central secretariat structure of core professional posts and consultants for the work of administration, coordination, training, fund raising, and the promotion of capital investment.

WRD/MKG/INF/R.59 Rev.6
22 May 1963
ORIGINAL : ENGLISH

ANNEX I

UNITED NATIONS

ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST
CAMBODIA, LAOS, THAILAND AND VIET-NAM
Committee for Coordination of Investigations of the
Lower Mekong Basin

RESOURCES

The total resources contributed or pledged to the Mekong Scheme in approximate U.S. Dollar equivalent as of 30 April 1963 were:

	GRANTS	
Australia a/ b/ (Pa Mong and Sambor dam site geology)		409,500
Canada a/ b/ (aerial mapping)		1,365,000
China b/ (cement; experimental highlands rice seed; study tour)		105,500
France b/ (hydrology; fisheries, sedimentation, soil surveys; flood prediction; delta reclamation planning; bauxite and other minerals prospection, geological mapping & domestic power market surveys)		1,056,[illegible]1
India a/ b/ (Tonle Sap project plan; rain gauges)		282,000
Iran (petroleum products)		77,000
Italy (expert services)		
Israel b/ (Prek Thnot project plan; irrigation; cement; programme-wide contingencies)		201,240
Japan a/ b/ (tributaries reconnaissance; Sambor preliminary project plan; Nam Pung project plan; Prek Thnot project plan: dams and hydroelectric power; Upper Sre Pok project plan; hydrology)		832,000
Netherlands (equipment)		138,000
New Zealand a/ (jet and survey boats; Tonle Sap project plan: equipment; programme-wide, co[illegible]		157,000
Pakistan a/ (Nam Pong project: irrigation construction plans and specifications)		100,000
Philippines (topographic mapping)		207.250
United Kingdom a/ (hydrology; meteorology; hydrography; navigation improvement)		364,000
United States a/ (hydrology, hydrography, levelling and ground control surveys, $2,420,000; Pa Mong project plan, estimated cost $2,500,000 c/)		4,920,000
UN/ECAFE (expert services and administrative support for Committee and Executive Agent; figure given is budget figure for 1961, 1962 , 1963 d/)		289,952
UN/TAB b/ (coordinates Expanded Technical Assistance Programme through which most of the BTAO and specialized agencies participation listed below is channelled)		
UN/BTAO (Wheeler Mission; experts; Advisory Board; serves jointly with ECAFE as executing agency for Special Fund tributaries, hydrography and minerals projects listed below; support to Office of Executive Agent)		362,799
ILO (manpower analysis)		12,104
FAO (agriculture and forestry studies; subcontractor for agricultural stations in Special Fund tributaries project listed below)		125,930
UNESCO b/ (executing agency for UN Special Fund mathematical delta model listed below; seismic survey)		16,800
WHO (schistosomiasis and malaria studies)		5,077
WMO (hydrometeorology)		45,300
IAEA (isotope studies of hydrology and sedimentation)		55,650
International Bank (provides member in Advisory Board)		
UN Special Fund:		
- Trib. Survey incl. agriculture stations b/	1,556,450	
- Hydrographic Survey b/	380,500	
- Minerals Surveys b/	422,300	
- Mathematical Delta Model Survey b/	605,300	2,964,550
	c/f	13.991.662

Asia Foundation (travel grants)	b/f	13.991.662
Ford Foundation (Economic and social study)		
Resources for the Future, Inc. (Power market analysis)		
Price Waterhouse Co. (Auditing of expenditure under New Zealand contribution)		
Sycip, Gorres, Velayo & Co. (Auditing of expenditure under Philippine contribution)		
Shell Co. (documentary motion picture of Mekong)		
Local costs and contributions paid or pledged by the riparian countries:		
- under Canadian mapping programme	105,000	
- under Indian Tonle Sap project	50,000	
- under US hydrology programme	400,000	
- under post-US hydrology programme (first 16/19 months, approximate)	489,000	
- under Special Fund Tributaries Project	471,792	
- under Special Fund hydrographic survey for navigation improvement	946,600	
- under Special Fund Minerals survey	233,640	
- under Special Fund UNESCO mathematical delta model project	127,143	
- under Israel/Japanese Prek Thnot project (Cambodia)	72,000	
- for Nam Pong Tributary project construction (Thailand)	6,000,000	
- under Japanese Sambor preliminary project	8,600	
- under Japanese Nam Pung project (Thailand)	3,018,400	
- under Japanese Upper Sre Pok Project (Viet-Nam)	14,285	
- under Pakistan Nam Pong Irrigation Planning	25,000	
- for experimental and demonstration farm at Battambang (Cambodia)	300,000	
- for experimental and demonstration farm at Kalasin (Thailand)	311,000	
		11,966,460
SUB-TOTAL: GRANTS		25.958.122
LOANS		
Federal Republic of Germany (Infrastructure loan to Thailand, 20 years, 3 percent, for construction of Nam Pong project; Thailand also appropriating $6,000,000 equivalent - see "Local costs" above)		11,000,000
SUB-TOTAL: LOANS		11,000,000
TOTAL: GRANTS AND LOANS		36.958.122

In addition to the two firms listed in the above table, engineering firms engaged in the various programmes include Associated Consluting Engineers of Karachi, Certeza Surveying Co., Japan Overseas Electric Power Development Co., Harza Co. International, Hunting Survey Corp. Ltd., Italconsult, Nippon Kosi K.K. Roger International Corp., Société grenobloise d'études et d'applications hydrauliques (SOGREAH), and Société française d'études et de réalisations d'équipements électriques (SOFRELEC), and Salzgitter Industriebau Gesellschaft MBH.

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a/ Through the Colombo Plan; total participation to date of nine countries in Colombo Plan equals approximately $8,245,794.

b/ Includes fellowships the cost of which in most cases are not included in the cost figures given above.

c/ In 1961 the U.S. undertook to investigate the feasibility of the Pa Mong project, subject to the constitutional process of appropriation in the U.S., and equally on the understanding that, as in all comprehensive feasibility investigations, a demonstration of non-feasibility would terminate the investigation; the broad estimate in 1961 of the total sum involved was $2,500,000; a subsequent estimate by the US Bureau of Reclamation was $5,000,000; the detailed firm estimate of U.S. expenditure for the first phase of the work, now in process is $690,000.

d/ ECAFE also performs many of the functions of the United Nations as executing agency for United Nations Special Fund tributary, hydrography and mineral surveys listed above.

ANNEX II

WHEELER MISSION RECOMMENDATIONS [1]

(Figures show expenditure in thousand US dollars)

1st priority _____ 2nd priority group

	1st	2nd	3rd	4th	5th Years
Reconnaissance of major tributaries	120	120			
Hydrologic observation & (precipitation)	1,140	240	240	2/	2/
Survey and mapping					
(a) Levelling	370		170		
(b) Aerial mapping	340	330	540	530	
(c) Supplementary spot levelling	310	300	180	180	
(d) Detailed topographic and hydrographic survey		150		120	
(e) Flowage damage survey		50		50	
(f) Construction material survey		50		90	
(g) Geological Investigation and borings		240		470	
(h) Soil Survey		60		130	
(i) Hydrographic Survey	30	30			
Related and special studies (fisheries agriculture, irrigation, Flood control and drainage), forestry, mineral resources, transportation (waterways, highways, railways and airways), power market, and general economic studies).	200	200	100		
Preliminary planning					
(1) Promising reaches of the main river			900		
(2) Other reaches of the main river and major tributaries and skeleton basin plan					900
Advisory service to Coordination Committee	50	50	50	50	50
Annual expenditure	2,560	1,820	2,180	1,690	950
Accumulated expenditure	2,560	4,380	6,560	8,250	9,200

1/ United Nations Bureau of Technical Assistance Administration (BTAO), formerly United Nations Technical Assistance Administration (TAA), Mission headed by Lt. Gen. R.A. Wheeler, "Programme of Studies and Investigations for Comprehensive Development - Lower Mekong Basin", TAA/AFE/10, January 1958.

2/ Operation and maintenance by countries concerned.

Annex III

UNITED NATIONS
ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST
Committee for Coordination of Investigations of the Lower Mekong Basin
(Cambodia, Laos, Thailand and the Republic of Viet-Nam)

MEKONG DEVELOPMENT PROJECT

Proposed Work Programme and Financial Plan for 1964/69
(Estimated foreign currency requirements in $1,000's)

(1)	(2)	5 year requirement (3)	Pledged or in reasonable prospect (4)	Net requirement (3) - (4) (5)
	1964/69			
1.0	Data collection, planning, navigation improvement, and ancillary projects	19,649	6,785	12,864
2.0	Administration, Coordination, Fund Raising, and Promotion of Capital Investment	3,750	750 1/	3,000
	TOTAL	23,399	7,535	15,864
1.0	DATA COLLECTION, PLANNING, NAVIGATION IMPROVEMENT, AND ANCILLARY PROJECTS			
1.1	Basin wide data collection	2,409	665	1,744
1.11	Mapping			
1.111	Mapping of irrigable areas for Pa Mong, Sambor and Tonle Sap Projects	1,500	-	1,500
1.112	Mapping of 9 promising tributaries (Nam Lik, Nam Theun, Se Bang Fai, Se Bang Hieng, Se Done, Lam Plai Mat, Sre Pok, Stung Pursat, Stung Sen)	405	405	-
1.113	Mapping of mainstem reservoir areas not covered by Canada (essentially Stung Treng-Khone reservoir) and mapping of dam sites (at Pak Peng, Luang Prabang, Pak Lay, Bung Kan, Thakhek, Khemarat, Pakse, Chau-Doc and Tan Chau required for basin planning)	220	-	220
1.12	Hydrology			
1.121	Operation of existing basin network	200	200	-
1.122	Establishment and operation of additional stations at 9 tributary project sites	84	60	24
1.2	Basin Plan	1,840	-	1,840
1.21	Field investigations (detailed reconnaissance, geological investigations, soil and land survey, construction material survey, flood damage survey) of about 12 project sites in the mainstream and 20 project sites in the major tributaries	1,240	--	1,240
1.22	Preliminary layout of projects including alternatives, estimation of costs and benefits, investigation of the interdependence of projects in a system with respect to power production, flood control, irrigation, drainage, navigation and domestic and industrial use of water; preparation of basin plan and alternatives.	600	-	600
1.3	Mainstream project planning - Comprehensive feasibility reports	5,900	5,500	400
1.31	Pa Mong			
1.311	Damsite geology	100	100	-
1.312	Feasibility report	4,300	4,300	-
1.32	Sambor			
1.321	Feasibility report	700	700	-
1.33	Tonle Sap (See also Item 1.64 below)			
1.331	Related studies on development of area around lake and the delta	400	-	400
1.332	Mathematical Delta Model	250	250	-
1.333	Feasibility report	150	150	-
1.4	Tributary project planning - Comprehensive feasibility reports	2,400	100	2,300
1.41	Prek Thnot (Cambodia)	100	100	-
1.42	Stung Pursat (Cambodia)	200	-	200
1.43	Stung Sen (Cambodia)	600	-	600
1.44	Se Done (Laos)	250	-	250
1.45	Nam Theun (Laos)	600	-	600
1.46	Lam Plai Mat (Thailand)	250	-	250
1.47	Upper Se San (Viet-Nam) (Transmission)	100	-	100
1.48	Upper Sre Pok (Six projects) (Viet-Nam)	300	-	300
1.5	Planning navigation improvement and minor works (Mapping of difficult rocky stretches on the basis of large scale aerial photographs, sweeping of channels, snag clearing, removal of dangerous rocks, improvement of rocky stretches, further improvement of shallow sections of the river and river entrances, further marking and improvement of channels, improvement in the design of existing craft, new craft designs including demonstration project, establishment of shipbuilding and ship repair facilities, port development and improvement of existing landings, comprehensive transport study with special reference to Mekong river navigation, study of alterations in the river regime and their repercussions on navigation, survey and study (economic and engineering) of ports and landing sites along the Mekong banks with appropriate recommendations)	2,500	-	2,500
1.6	Ancillary projects	4,600	520	4,080
1.61	Minerals surveys	900	400	500
1.62	Power market surveys			
1.621	Domestic power market survey	80	80	-
1.622	Regional power market survey	230	-	230
1.623	Global power market survey	40	40	-
1.63	Flood warning system	250	-	250
1.64	Irrigation experimental and demonstration farms (at Battambang in Cambodia, Kalasin in Thailand, Upper Sre Pok in Viet-Nam, and (see Item 1.33 above) in Trans-Bassac and Plaine des Joncs in Viet-Nam; 6 projects at about $300,000 in overseas currency each)	1,500	-	1,500
1.65	Public Health	300	-	300
1.66	Economic and social investigations	1,000	-	1,000
2.0	CENTRAL ADMINISTRATION, COORDINATION, TRAINING, FUND RAISING, & PROMOTION OF CAPITAL INVESTMENT (Some 18 core professional posts plus the Advisory Board, consultant services, training facilities, expansion resources, miscellaneous and contingency resources, and related supporting services are sought for the five years commencing 1 January 1964.	3,750	750 1/	3,000

1/ $205,000 included in Special Fund and BTAO projects through 1964; $545,000 represents continuation of present UN/ECAFE professional and general service posts through full five years.